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# KENTUCKY MEDICAL JOURNAL

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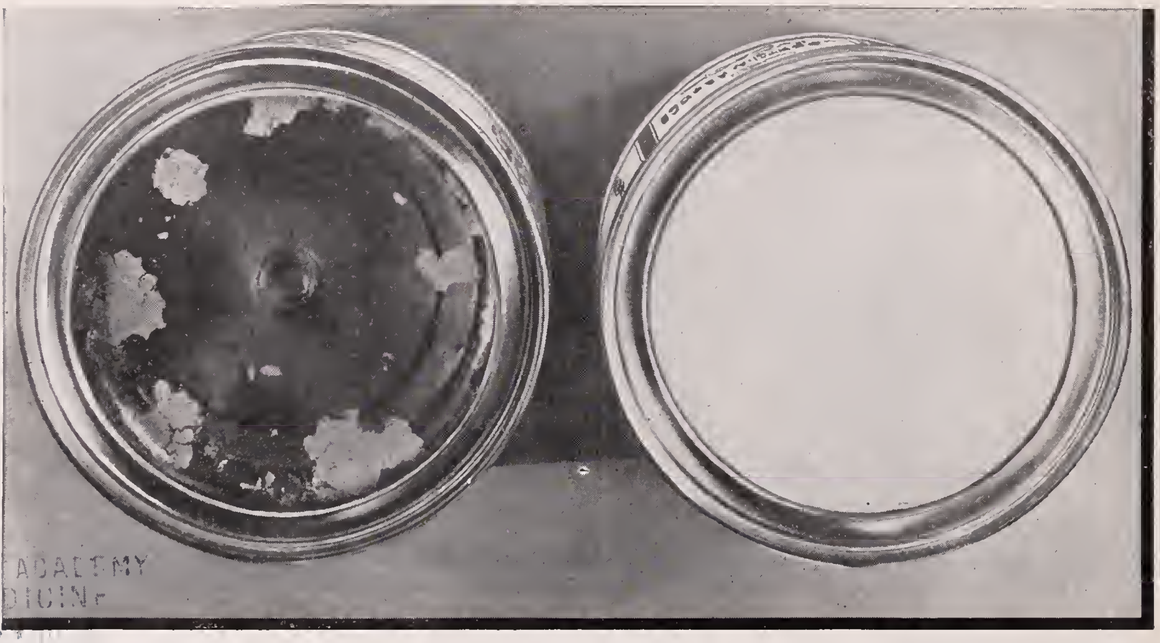

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### *Syrup Contaminated by Exposure to Air*

FIG. 1. The can of syrup* shown above was opened for one-half hour in a bacteriological laboratory to permit withdrawal of a portion of its contents. This was done with sterile pipettes. The can was then covered tightly and stored. One month later it was again opened for the purpose of obtaining more syrup but examination revealed the heavy mold growth pictured above. Growth also developed in two other cans purposely exposed for a brief time. Mold grew in one as early as 7 days after the can was opened.

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FIG. 2. This can of Dextri-Maltose was opened for one-half hour to approximate conditions under which accidental contamination appeared in syrup at left. To make the test more severe, the Dextri-Maltose was also heavily inoculated with a microorganism which had previously produced thick growth in syrup. The can was then closed and not opened for 40 days, at which time no growth was visible. Later, the can was opened 4 or 5 times for a total exposure of about 1 hour, without the slightest evidence of growth.

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# KENTUCKY MEDICAL JOURNAL

BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

**Published Under the Auspices of the Council**

VOL. 31 No. 1 BOWLING GREEN, KY., JANUARY, 1933

## SUB JUDICE

At the beginning of a new year we hope our readers will feel that it is natural for the Editor to indulge in a bit of retrospection. Many of the pages of the medical history of Kentucky have not yet been formally printed, but we, who are the heirs of the pioneers who brought medical science to Kentucky, from time to time should spend some of our spare moments in gratitude and pride in what they have done for us.

Transylvania was the first medical school in the West and the fifth in the United States. Before it was founded McDowell had won imperishable fame as the pioneer of abdominal surgery. Kentucky became and was for many years the center of medical education in the West. For three-quarters of a century more than half of the physicians in the South and West were educated here and the deans and faculties of our great schools transmitted to them the spirit of service and altruism that has actuated the members of our profession since the days of Hippocrates and Galen.

During all of these years Kentucky has contributed to the medical leadership of the Nation. Five Presidents of the American Medical Association have come from Kentucky and as many more were born and educated in the State. The medical profession of Kentucky blazed the trail in medical organization and the plan adopted here was three years later adopted, with slight changes, as the plan for all of the other states. Earlier than any other state, except Alabama, responsibility for medical service and public health was placed squarely on the shoulders of the medical profession of the State. In each of the past fifty years progress has been made under the unselfish guidance of the members of our profession. It is with pride that we recall that every step in this progress has been for the benefit of the people of our Commonwealth and that each of them has been taken without thought of other remuneration for the profession than better service and better health for the people. Our profession has retained the complete confidence of the people of the State and, except in a few minor matters, its leadership has been accepted by successive sessions of the General Assembly. Pages could be written about the details of these achievements. It is enough, however, to express our pride in them and to be inspired and animated by them in our present determination to carry on in the same spirit.

It is in this attitude of mind that we are led to study the very remarkable final report on "Medical Care for the American People," by The Committee on the Cost of Medical Care, as a result of its five year study of the subject. The fact that Doctors Lewellys F. Barker, J. Shelton Horsley, Stewart R. Roberts, William Darrach, Walter R. Steiner W. S. Rankin, Walter P. Bowers, Richard M. Smith, Roland T. Woodyatt, W. Irving Clark, Alfred Owre, Winford H. Smith, George H. Bigelow, Herman N. Bundeson, Haven Emerson, John Sundwall and Ray Lyman Wilbur are those who signed the Report of the Committee will insure its thoughtful study by the profession of Kentucky. At the same time, it is to be remembered that Doctors A. C. Christie, George E. Follansbee, M. L. Harris, Kirby S. Howlett, Arthur C. Morgan, N. B. Van Etten, Robert Wilson and Olin West signed the Minority Report. It is important to note that, except for two issues and certain implications, these two reports are in agreement.

On other pages of this issue of the JOURNAL we have the privilege of presenting to our readers the addresses of Doctors Barker and Wilbur in support of the Report of the Committee and of Doctor Van Etten of New York, who presented the Minority Report. These three addresses indicate the high plane on which the members of the Committee worked. Both the Report of the Committee and the Minority Report are published in a single volume. These will soon be made available and it is hoped that the profession of Kentucky will carefully study them. For the present it is enough to quote the following recommendations of the Committee:

I

The Committee recommends that medical service, both preventive and therapeutic, should be furnished largely by organized groups of physicians, dentists, nurses, pharmacists, and other associated personnel. Such groups should be organized, preferably around a hospital, for rendering complete home, office, and hospital care. The form of organization should encourage the maintenance of high standards and the development or preservation of a personal relation between patient and physician.

II

The Committee recommends the extension of all basic public health services—whether provided by governmental or non-governmental agencies—so that they will be available to the entire population according to its needs. Primarily this extension requires increased financial support for official health departments and full-time trained health officers and members of their staffs whose tenure is dependent only upon professional and administrative competence.

III

The Committee recommends that the costs of medical care be placed on a group payment basis, through the use of insurance, through the use of taxation, or through the use of both these methods. This is not meant to preclude the continuation of medical service provided on an individual fee basis for those who prefer the present method. Cash benefits, i. e., compensation for wage-loss due to illness, if and when provided, should be separate and distinct from medical services.

IV

The Committee recommends that the study, evaluation, and co-ordination of medical service be considered important functions for every state and local community, that agencies be formed to exercise these functions, and that the co-ordination of rural with urban services receive special attention.

V

The Committee makes the following recommendations in the field of professional education: (A) That the training of physicians give increasing emphasis to the teaching of health and the prevention of disease; that more effective efforts be made to provide trained health officers; that the social aspects of medical practice be given greater attention; that specialties be restricted to those specially qualified; and that post-graduate educational opportunities be increased; (B) that dental students be given a broader educational background; (C) that pharmaceutical education place more stress on the pharmacist's responsibilities and opportunities for public service; (D) that nursing education be thoroughly remoulded to provide well-educated and well-qualified nurses; (E) that less thoroughly trained but competent nursing aides and attendants be provided; (F) that adequate training for nurse-midwives be provided; and (G) that opportunities be offered for the systematic training of hospital and clinic administrators.''

Along with this report we should consider the recommendations of the principal minority group as follows:

I

The minority recommends that government competition in the practice of medicine be discontinued and that its activities be restricted (a) to the care of the indigent and of those patients with diseases which can be cared for only in governmental institutions; (b) to the promotion of public health; (c) to the support of the medical departments of the Army and Navy, Coast and Geodetic Survey, and other government services which cannot because of their nature or location be served by the general medical profession; and (d) to the care of veterans suffering from bona fide service-connected disabilities and diseases, except in the case of tuberculosis and nervous and mental diseases.

II

The minority recommends that government care of the indigent be expanded with the ultimate object of relieving the medical profession of this burden.

III

The minority joins with the Committee in recommending that the study, evaluation, and co-ordination of medical service be considered important functions for every state and local community, that agencies be formed to exercise these functions, and that the co-ordination of rural with urban services receive special attention.

IV

The minority recommends that united attempts be made to restore the general practitioner to the central place in medical practice.

V

The minority recommends that the corporate practice of medicine, financed through intermediary agencies, be vigorously and persistently opposed as being economically wasteful, inimical to a continued and sustained high quality of medical care, or unfair exploitation of the medical profession.

VI

The minority recommends that methods be given careful trial which can rightly be fitted into our present institutions and agencies without interfering with the fundamentals of medical practice.

VII

The minority recommends the development by state or county medical societies of plans for medical care.

It is important in the consideration of this subject to keep in mind that the purpose of the Committee was to provide medical and health service for *all* of the people.

The Committee well states: "Some of the social problems facing civilization present almost insuperable barriers, barriers arising from the very biological nature of man. This problem is not among them, it can be solved."

It further well says: "The problem is complicated and differs from one region to another No panacea is available; no solution is applicable today to all areas of the country . . . among these population groups there are wide variations in cultural attainments and in standards of living. This means that there are wide variations in the kind of medical service which is demanded." Again they say: "The recommendations vary in importance, in scope and in immediate applicability. Some are applicable only to urban areas; others only partially solve the problem. Some of the recommendations could be applied immediately, whereas others must await further evolution of a medical practice and the development of an informed public opinion." The Committee properly states that it not dogmatic in its recommendations. "The aim should be to adopt objectives which at present seem sound, and to develop definite and purposeful experimental methods of approaching those objectives, preserving, insofar as it is compatible with effective service, the maximum amount of local self-support and self-control, and the greatest freedom, consistent with social welfare, for the professions and agencies involved . . . where action can be limited to the city or the county, we have several thousand experiment stations. If state action is necessary there are forty-eight laboratories."

Throughout both the Majority and Minority Reports the recommendation constantly recurs: "The form of organization should encourage the maintenance of high standards and the development or preservation of a personal relation between patient and physician."

On account of its present importance we quote in full the action of the Committee under the title, "The Strengthening of Public Health Services," and it is of interest that those signing the Minority Report say, "We are in full and hearty accord with the Majority in its recommendations for the strengthening of public health services . . " and this indorsement is repeated seven times in the Minority Report:

"The United States spends only $1 per capita for public health services to every $29 for other medical services. As a consequence public health service in the United States—both governmental and non-governmental—is far from adequate, even in many large and medium-size cities. In towns and rural areas it is usually rudimentary. Public health work does not attract so many well-qualified medical students as it should, because tenure is frequently uncertain and subject to political influence and because lack of adequate financial support often makes the remuneration low and restricts the opportunities for effective work. Considering its potentialities for raising the general level of health of the people at relatively low cost, the public health service in the United States is very deficient.

Recommendation 2.—The Committee recommends the extension of all basic public health services—whether provided by governmental or non-governmental agencies—so that they will be available to the entire population according to its needs. Primarily this extension requires increased financial support for official health departments and full-time trained health officers and members of their staffs whose tenure is dependent only upon professional and administrative competence.

Accepted public health services should be extended, under full-time trained health officers employed by local or state governments, to all areas which are now without such services, as rapidly as qualified personnel are available. The tenure of health officers and their staffs should be independent of political considerations, and should depend entirely upon administrative and technical competence. Approximately $2.00 to $3.00 per capita should be allowed local health services to enable them to meet accepted standards, such as those of the American Public Health Association. The area for a public health unit should be sufficiently large and populous to make such support feasible. This will often require in rural communities the joining of several counties or other governmental units in a public health district.

In addition to geographic extension, public health services should be expanded until they include all the types of service which are proper public health functions, unless these services are adequately supplied by non-governmental agencies co-operating with the health department. There is nearly universal agreement that the following are "proper public health functions": (a) the collection and analysis of vital statistics; (b) the control of water, milk, and food supplies; (c) the control of sanitation; (d) the control, through quarantine and supervision, of communicable diseases; and (e) the provision of laboratory service. In addition to these, the Committee believes that the following activities are also proper public health activities: (f) the promotion of maternal, infant, and child hygiene, including medical and dental inspection and supervision of school children; (g) popular health instruction; (h) the provision of preventive dental care for children, and (i) the provision of special services for the prevention, diagnosis, and treatment of patients with tuberculosis, venereal diseases, malaria, hookworm, or any other disease which constitutes a special health problem in the community that cannot be solved adequately and effectively by the other available medical and health agencies. For many of these services, it is essential to have a well-organized and efficient public health nursing service. The Committee is aware that the particular public health activities which most need expansion differ from one community to another. Careful study should be given to all public health work to insure a balanced community program.''

After reading the Report through for the second time and after hearing it presented before the great meeting at the Academy of Medicine in New York, we desire to frankly say to the medical profession of Kentucky that this Report is worthy of study, that many of the recommendations in the Report and the Minority Report will find hearty approval, that some of the experiments suggested in it should and will be tried out, that it recognizes the end of an era in medical service and the dawn of a new day that will affect the medical profession and the public in the manner and just in proportion to the wisdom of the leadership which shall interpret these findings and guide them into the future.

## KENTUCKY HONORED

At the recent meeting of the Southern Medical Association at Birmingham, the profession of Kentucky was honored by the election of Doctor Irvin Abell as President.

Doctor Abell is the first member of the Kentucky State Medical Association to be given this honor in the twenty-five years of the history of the Southern. It is particularly fitting that he should be selected to preside at the meeting next year at Richmond, Virginia. It will give him the opportunity to lead back to the state from which so many of our ancestors came, a host of Kentucky physicians, to do him honor and to profit by the great scientific sessions of the Southern Medical Association.

The profession of Kentucky will, of course, give Doctor Abell every possible aid and support in the administration of this new responsibility.

## DOCTOR JAMES H. LETCHER

With great affection, with pride in his notable career, we note the passing on of Doctor James H. Letcher of Henderson.

Doctor Letcher was an outstanding Christian gentleman, a real physician, a skillful surgeon, a loyal friend. What more can be said of man!

Doctor Letcher was Secretary of the Kentucky State Medical Association from 1877 to 1879 and was President of the Association in 1901. He was worthy of his distinguished lineage and merited every honor and tribute that was ever paid him.

## McDOWELL'S CASE OF EXTIRPATION OF DISEASED OVARIA

While in Philadelphia at the American Medical Association meeting, the Editor was shown the priceless copy of The Eclectic Repertory, and Analytical Review, containing the report of three cases of diseased ovaria by Ephraim McDowell, M. D., of Danville, Kentucky, published in 1817. This is one of the two copies known to be in existence and it had been preserved and is owned by the College of Physicians of Philadelphia. The readers can imagine our emotion on seeing the actual Journal in which McDowell's first operations were given to the medical world.

A few months later we were very happy to receive from Colonel Henry D. Jump, a distinguished member of the College, photostatic copies of the Title page of the Review and the Index page, and of the three pages of the report. In order that the physicians of Kentucky may share the joy which this gift brought to our office, we are reproducing these priceless pages in this issue. The plates will be kept with the other memorabilia of McDowell in the possession of the Association.

When one thinks that this modest report represents the discovery of one of those important procedures that has modified the whole history of human-kind, one thrills with pride at the heroism of this great pioneer, this model surgeon, and the fine co-operation which he received from that pioneer heroine, Jane Todd Crawford, the model patient.

## NECESSITY FOR GROWTH IS OBJECT OF CHILD PLAY

Children's play is more than a mere pastime; it is necessity for growth. With this consideration in mind, one must determine the characteristics and needs of a 2 year old child. In the first place, he is extremely active and needs an opportunity to use all his large muscles. He needs a place where he may run and jump, an opportunity to balance and climb and to pull fairly heavy objects about. He has a short span of interest and needs many objects with which to experiment. He has an immense curiosity which leads him to invesigate everything that comes within his reach. For the first time he feels himself to be a real person and consequently resents hampering and blocking of his independence and initiative. Considering these factors, the mother will find a more absorbed child at play, according to Dorothy Cannon Thompson who contributes to the October Hygeia.

# THE PRESENT AND FUTURE SIGNIFICANCE OF THE FINDINGS AND RECOMMENDATIONS OF THE COMMITTEE ON THE COSTS OF MEDICAL CARE—FROM THE PHYSICIAN'S POINT OF VIEW*

LEWELLYS F. BARKER M. D.

Baltimore.

As a physician, I feel that both the public and the medical profession should be very grateful to this Committee, first, for its careful analysis of the whole situation; and, second, for pointing out the paths that it regards as most promising for better things in the future.

No one is more proud than I am of what the medical profession has done in this country in the way of medical research, in the way of medical education, and in the development of the possibilities of medical practice, but no one knows better than the medical profession that there are still great inadequacies of medical care and great difficulties in the distribution of medical care and in the payment of the costs of medical care.

There is something wrong in the country where provision is not made for the 80 per cent of the people whose incomes are insufficient to supply them with proper medical care during serious illness. Of course, the medical profession does the best it can and the public is doing the best it can, as it thinks, but there is something wrong in an organization that does not make definite provision for the care of serious illness among 80 per cent of our people.

The medical men all agree that patients should have competent doctors, that patients should have access to good facilities, that the personal relations between doctors and patients should be maintained, and that the costs of medical care should be within the reach in some way or other of everyone who needs the care; in other words, the costs must be in some way distributed so that every patient who needs care can have it.

In this report all kinds of efforts that have been made have been carefully summarized. There was a large variety described, some of them excellent methods; some of them are very defective; some of the methods of medical care are actually pernicious, as we medical men know perhaps better than the public knows. The Committee has recommended progress by a process of evolution rather than by revolutionary change and, as a medical man, that appeals to me as a wise recommendation.

In the discussion of agencies and distribution of costs, the Committee has avoided, on the one hand, the *laissez faire* attitude of doing nothing and, on the other, any sudden and rash venture into dangerous areas. It has recommended experimentation, especially by local groups.

As a doctor, it seems to me that if the recommendations of the Committee could be widely adopted, any of our present problems would be definitely solved; that there could be adequate curative and preventive medicines applied for all income classes; that ways of distributing, co-ordinating, and financing the costs of these services would be determined; the medical profession would be properly safeguarded and more adequately remunerated than now; the danger of degradation and demoralization of the indigent would be lessened, and the bugbear of a huge and dangerous bureaucracy would lose its terrors.

This Committee includes physicians and surgeons, social workers, public health workers, administrators, government officials, and representatives of the public. As has been said by several of the speakers, it is inconceivable that there could have been unanimity of opinion in such a group, undersirable that there should be unanimity of opinion. How could there be at this stage of development? Conclusions cannot be equally acceptable to all because of such varied interests and such different viewpoints represented on the Committee. The two things that are most criticized are the recommendations regarding group service and group purchase, and those are the two main recommendations of the Committee.

As to group service, there is great fear on the part of many in the medical profession that the domain of the individual doctor might be encroached upon, that doctors would come under lay control, and that the personal relations of doctors and patients would be interferred with. When it comes to group purchase. there you run up against one of the things that immediately excites the fear of state medicine on the one hand and of compulsory insurance on the other. This violent opposition, talk of Socialism, talk of Communism, as we have heard, result largely from the bad patterns of group purchase that were established at first in Europe when the attempts were made to distribute costs. It is no wonder that those bad patterns should be feared; they should be, and they should be avoided.

The Committee foresaw a good many of

(Continued on Page 12)

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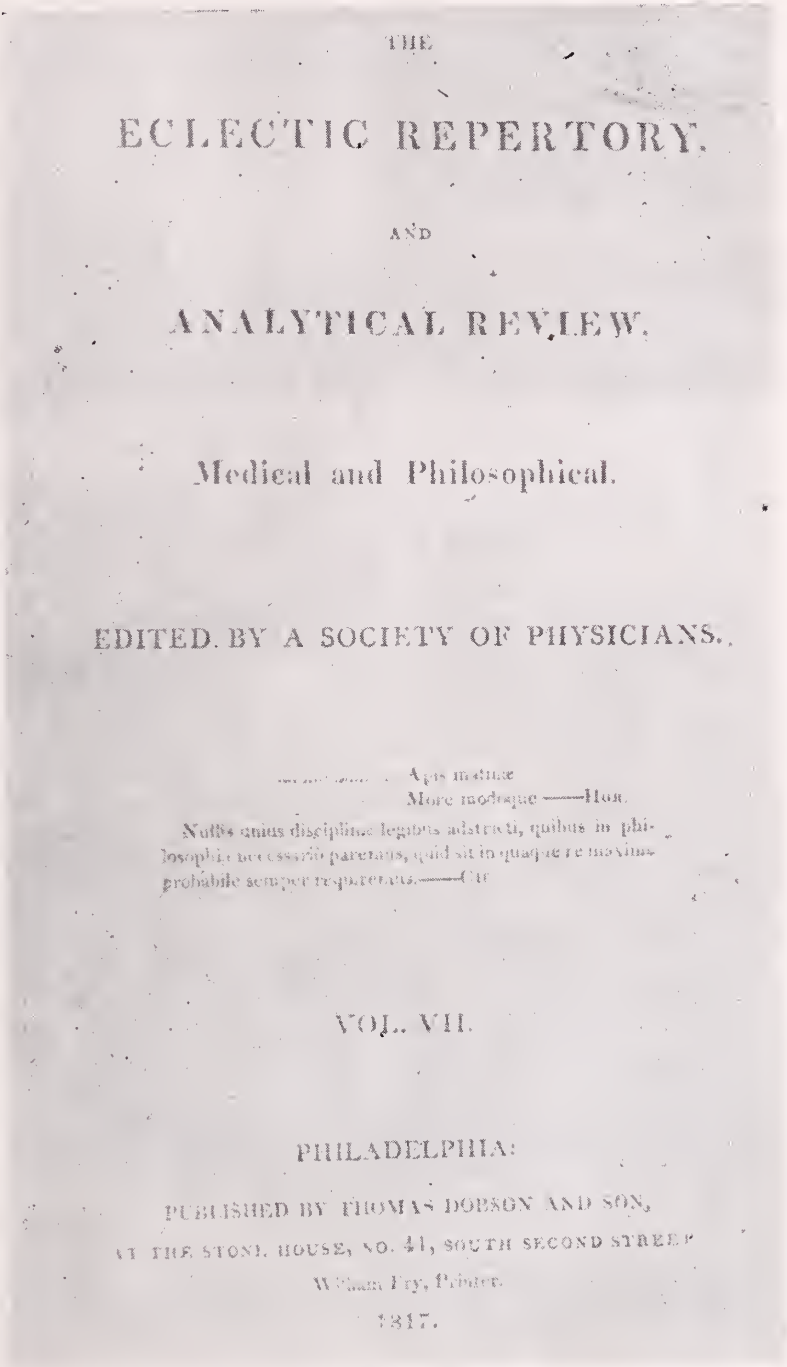
*Delivered at the National Conference on the Costs of Medical Care New York Academy of Medicine, November 29, 1932.

On the five following pages will be found photographic reproductions of the title page, the index, and three pages of the first publication of Doctor Ephriam McDowell's description of his first three ovariotomies. These pages are reproduced from photostats of the original copy of the Review which is in the Library of the College of Physicians of Philadelphia, and which were presented to Dr. A. T. McCormack, Secretary of the Kentucky State Medical Association, by Colonel Henry D. Jump, of Philadelphia.



THE

ECLECTIC REPERTORY,

AND

ANALYTICAL REVIEW,

Medical and Philosophical.

EDITED BY A SOCIETY OF PHYSICIANS.

——— Apis matinæ
More modoque ——Hor.

Nullis unius disciplinæ legibus adstricti, quibus in philosophia necessario pareamus, quid sit in quaque re maxime probabile semper requiremus.——Cic.

VOL. VII.

PHILADELPHIA:

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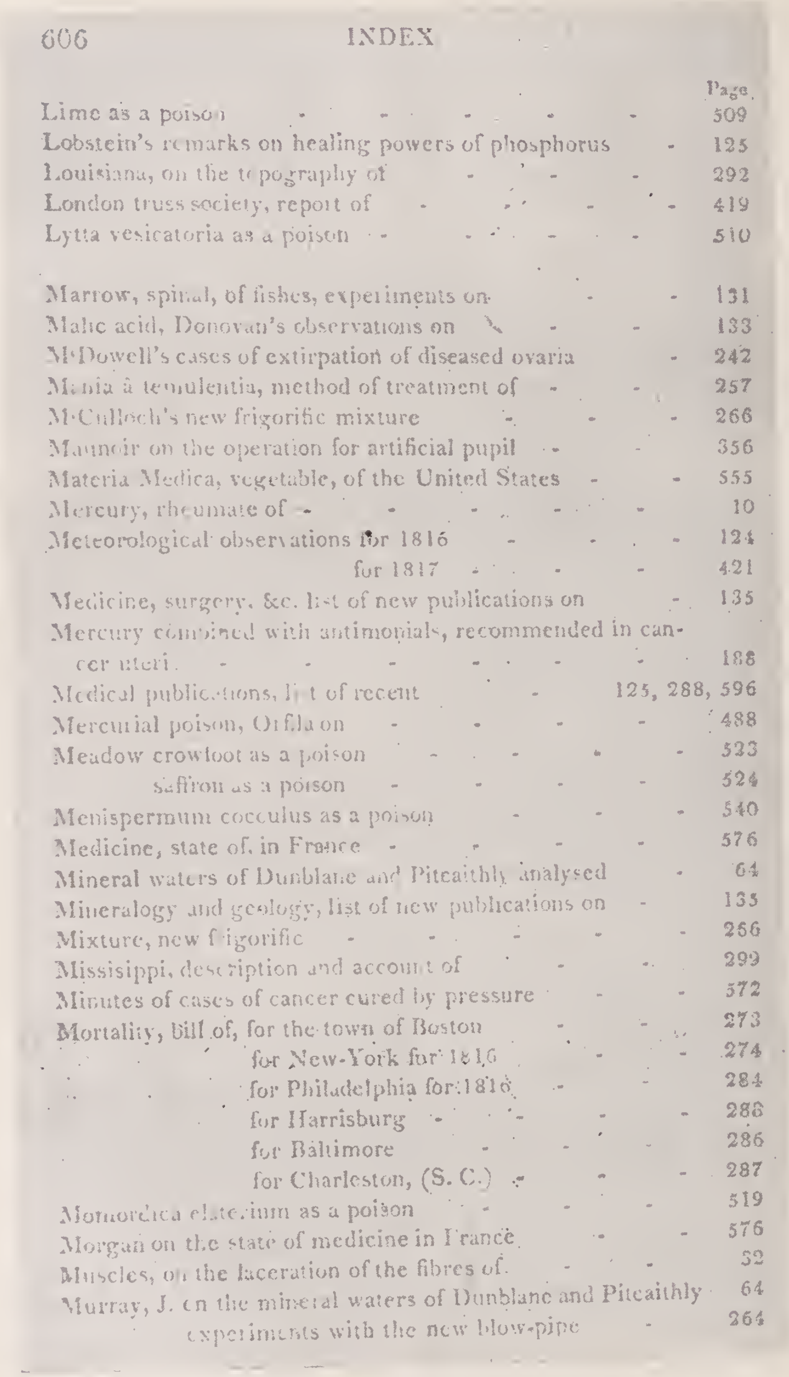
Title Page



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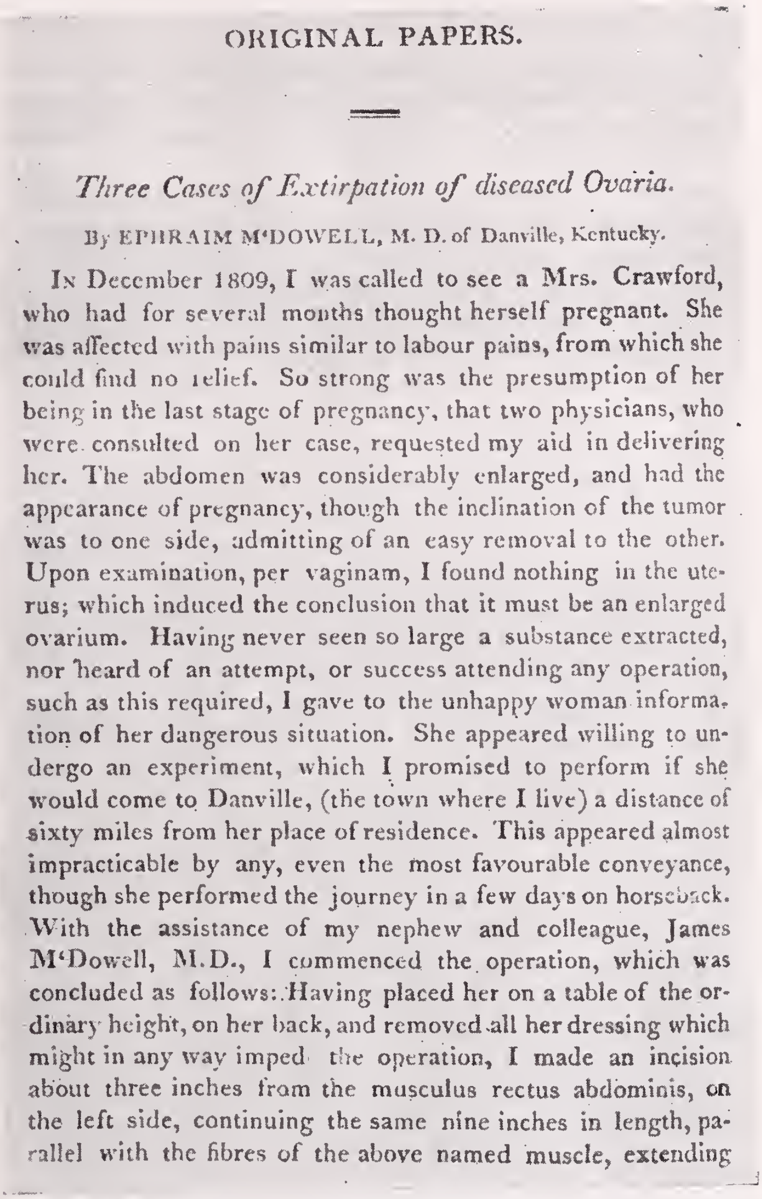


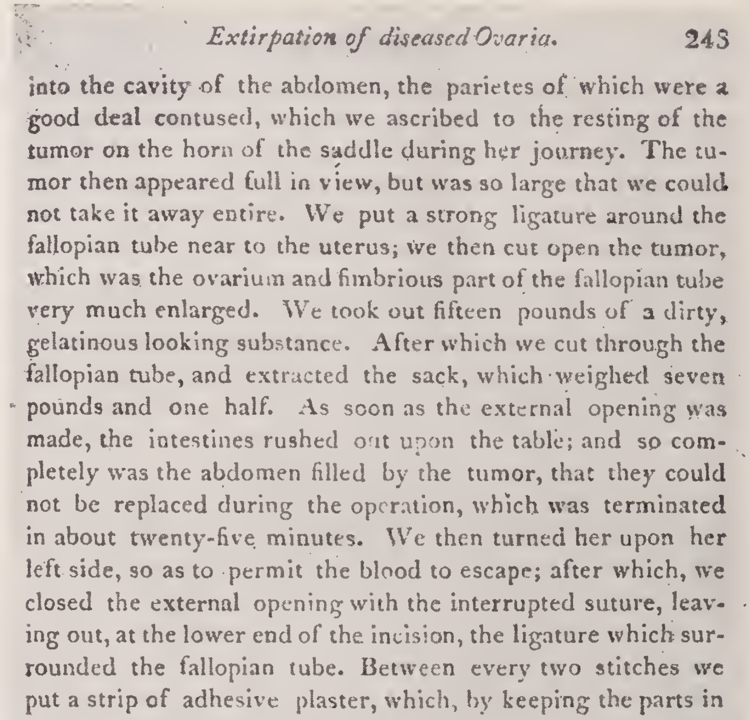
## ORIGINAL PAPERS.

### *Three Cases of Extirpation of diseased Ovaria.*

By EPHRAIM M‘DOWELL, M. D. of Danville, Kentucky.

In December 1809, I was called to see a Mrs. Crawford, who had for several months thought herself pregnant. She was affected with pains similar to labour pains, from which she could find no relief. So strong was the presumption of her being in the last stage of pregnancy, that two physicians, who were consulted on her case, requested my aid in delivering her. The abdomen was considerably enlarged, and had the appearance of pregnancy, though the inclination of the tumor was to one side, admitting of an easy removal to the other. Upon examination, per vaginam, I found nothing in the uterus; which induced the conclusion that it must be an enlarged ovarium. Having never seen so large a substance extracted, nor heard of an attempt, or success attending any operation, such as this required, I gave to the unhappy woman information of her dangerous situation. She appeared willing to undergo an experiment, which I promised to perform if she would come to Danville, (the town where I live) a distance of sixty miles from her place of residence. This appeared almost impracticable by any, even the most favourable conveyance, though she performed the journey in a few days on horseback. With the assistance of my nephew and colleague, James M‘Dowell, M.D., I commenced the operation, which was concluded as follows: Having placed her on a table of the ordinary height, on her back, and removed all her dressing which might in any way impede the operation, I made an incision about three inches from the musculus rectus abdominis, on the left side, continuing the same nine inches in length, parallel with the fibres of the above named muscle, extending

Original Papers



into the cavity of the abdomen, the parietes of which were a good deal contused, which we ascribed to the resting of the tumor on the horn of the saddle during her journey. The tumor then appeared full in view, but was so large that we could not take it away entire. We put a strong ligature around the fallopian tube near to the uterus; we then cut open the tumor, which was the ovarium and fimbrious part of the fallopian tube very much enlarged. We took out fifteen pounds of a dirty, gelatinous looking substance. After which we cut through the fallopian tube, and extracted the sack, which weighed seven pounds and one half. As soon as the external opening was made, the intestines rushed out upon the table; and so completely was the abdomen filled by the tumor, that they could not be replaced during the operation, which was terminated in about twenty-five minutes. We then turned her upon her left side, so as to permit the blood to escape; after which, we closed the external opening with the interrupted suture, leaving out, at the lower end of the incision, the ligature which surrounded the fallopian tube. Between every two stitches we put a strip of adhesive plaster, which, by keeping the parts in contact, hastened the healing of the incision. We then applied the usual dressings, put her to bed, and prescribed a strict observance of the antiphlogistic regimen. In five days I visited her, and much to my astonishment found her engaged in making up her bed. I gave her particular caution for the future; and in twenty-five days, she returned home as she came, in good health, which she continues to enjoy.

Since the above case, I was called to a negro woman, who had a hard and very painful tumor in the abdomen. I gave her mercury for three or four months with some abatement of pain; but she was still unable to perform her usual duties. As the tumor was fixed and immoveable, I did not advise an operation; though from the earnest solicitation of her master, and her own distressful condition, I agreed to the experiment. I had her placed upon a table, laid her side open as in the above case; put my hand in, found the ovarium very much enlarged, painful to the touch, and firmly adhering to the vesica urinaria and fundus uteri. To extract I thought would be instantly fatal; but by way of experiment I plunged the scalpel into

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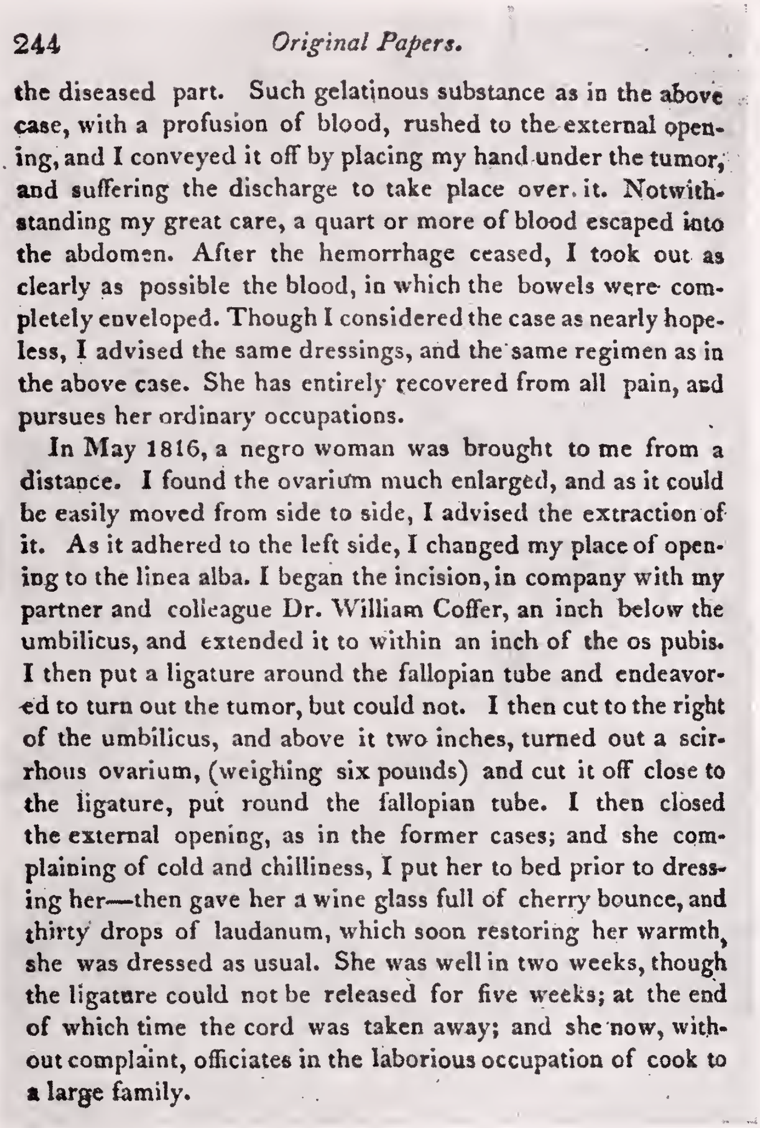

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the diseased part. Such gelatinous substance as in the above case, with a profusion of blood, rushed to the external opening, and I conveyed it off by placing my hand under the tumor, and suffering the discharge to take place over it. Notwithstanding my great care, a quart or more of blood escaped into the abdomen. After the hemorrhage ceased, I took out as clearly as possible the blood, in which the bowels were completely enveloped. Though I considered the case as nearly hopeless, I advised the same dressings, and the same regimen as in the above case. She has entirely recovered from all pain, and pursues her ordinary occupations.

In May 1816, a negro woman was brought to me from a distance. I found the ovarium much enlarged, and as it could be easily moved from side to side, I advised the extraction of it. As it adhered to the left side, I changed my place of opening to the linea alba. I began the incision, in company with my partner and colleague Dr. William Coffer, an inch below the umbilicus, and extended it to within an inch of the os pubis. I then put a ligature around the fallopian tube and endeavored to turn out the tumor, but could not. I then cut to the right of the umbilicus, and above it two inches, turned out a scirrhous ovarium, (weighing six pounds) and cut it off close to the ligature, put round the fallopian tube. I then closed the external opening, as in the former cases; and she complaining of cold and chilliness, I put her to bed prior to dressing her—then gave her a wine glass full of cherry bounce, and thirty drops of laudanum, which soon restoring her warmth, she was dressed as usual. She was well in two weeks, though the ligature could not be released for five weeks; at the end of which time the cord was taken away; and she now, without complaint, officiates in the laborious occupation of cook to a large family.

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# THE PRESENT AND FUTURE SIGNIFICANCE OF THE FINDINGS AND RECOMMENDATIONS OF THE COMMITTEE ON THE COSTS OF MEDICAL CARE—FROM THE PHYSICIANS' POINT OF VIEW

(Continued from Page 5)

these objections and in the majority report it laid great stress, as does the principal minority report, on the complete separation in any insurance principle of the costs of medical care from the cash benefits that go for loss of wages due to illness. By that single recommendation the Committee removed one of the chief apples of discord. If those two things could be kept absolutely separate in any general provision by distributing cost, you would avoid a great deal of trouble, for the principle of insurance was introduced in the first place not to provide medical care at all but for the relief of poverty. Medical care was tacked on as secondary consideration and in most of the European patterns the two were kept together and there was a continual clash between the physicians on the one hand and the social workers on the other. There always will be clash between social workers and politicians on the one hand and doctors on the other if those two things go together, cash benefits and care of illness; but even if cash benefits are kept entirely separate from the medical care, there are enough problems connected with insurance. Dr. Van Etten has referred to some of them.

In European countries the mortality rate has not decreased under this insurance system. In the second place, the average number of illnesses has been increased. In the third place, the average duration of illness has increased under the insurance system; and, in the fourth place, some wholly new diseases, namely, the compensation neuroses, have come as a result apparently of these laws.

However, bad as it has been in Europe, bad as some of their patterns established have been, the average care of the sick is better than it was before insurance was introduced. The average income of the doctors concerned is larger than it was before; and, a third point, no country that has resorted to the principle of insurance has given it up. Those three things must be remembered.

The doctors on your Committee are members of the American Medical Association and they feel a great responsibility both to the public and to the medical profession, but we must not forget that doctors in general have a very individualistic attitude. They fear any mass action, and mechanization of medicine, and they are right, quite right. They realize, and rightly, the great importance of the personal relationship of doctor and patient, and they are very likely to react with violent opposition to any innovation on account of their conservative, individualistic attitude. They are afraid of innovation, very much afraid of it.

I want to warn my colleagues in the profession against too negative an attitude. This world is not static. This world is changing all the time. The medical profession must change with the rest of the world and keep pace with it. The negative attitude of our English and German confreres was very disastrous to the medical profession. That negative attitude did not prevent the development of health insurance in England and Germany. It put the doctors in a very false light. It excited public hostility against men whom the public were led to believe were acting from a selfish attitude rather than from a public spirited attitude; and, worst of all, the medical men lost their influence and leadership and had very little to say about the patterns of insurance that were established.

Recently medical men have waked up to that fact in Europe and have seen that some kind of insurance was inevitable, and helped to form new patterns of health insurance, tried to protect both the public and the profession and tried to keep the medical control of the purely professional aspects of the work.

Shouldn't we in this country profit by those mistakes that were made in Europe? In my opinion forms of health insurance are bound to be tried out in this country. They should be tried out. We must watch them and try to direct them in the right way and discover what place, if any, health insurance has in the American program. Let the doctors lead in this and try to determine the policies and make them good, instead of bad, and in doing so the publications of this Committee will be very helpful to them, and if doctors take that attitude, instead of the other, negative attitude, we will keep the good will of the public, avoid hostility, and maintain the dignity and ideals of the profession.

I welcome the minority reports. I welcome the statement of Mr. Hamilton. It is well to have those things put down, to see what groups and persons are thinking. I welcome the criticism of group practice, of the community center, of voluntary insurance. I see the danger of new evils and they have vividly portrayed them in their reports. Their emphasis on the county society method is well worth listening to. What the Milwaukee County Society has done might be imitated in other places. I should like to see that method tried elsewhere, but these minority reports and single statements ought to be very helpful. They ought to make everybody act more cautiously and more warily. To be forewarned about possible evils and dangers is to be forearmed against them.

Aside, wholly, from these differences of opinion, there are a host of opportunities for action. These opportunities ought to be recognized promptly and acted upon all over this country. There should be community organizations to study and to take the lead in the work, possibly some state organizations; no harm in a general national organization that will help and advise.

This Committee on the Costs of Medical Care goes out of existence this year. That must not be forgotten. What hard work they have done! What noble contributions they have made! The fact-finding alone is worth the cost of the whole Committee. The advice they have given has been very carefully considered. Surely it is up to the leaders of thought and action in this country to pay serious attention to the report of the Committee and to do what they can to bring about reforms.

I think we owe a great debt to the Director, to the administrative staff, to the research staff, and the foundations who have made the study possible, and I believe that the publication of this report today marks the beginning of a new epoch in American history.

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# THE MINORITY REPORT OF THE COMMITTEE ON THE COSTS OF MEDICAL CARE*

Nathan B. Van Etten, M. D.
New York

I have the honor, Mr. Chairman, to comment briefly upon some divergent visions of a few members of our Committee upon the solution of the problems of "The delivery of adequate scientific medical service to all of the people, rich and poor, at a cost which can be reasonably met by them in their respective stations in life." All of the studies were pointed at this target or at sources of reflected light which might illuminate it.

The work of the Committee carried on by an exceptionally able director and staff, is monumental and we learned much about adequacy, costs, and distribution, and the details of many experiments supported by masses of statistics which were delivered so rapidly and so continuously that there was some inevitable indigestion when we suddenly changed into gentlemen of the jury who must weigh evidence and recommend cures for a faulty social operation.

All concurred in praise of the diligence, skill, and logical presentment of the findings and in most of the interpretations. All tried to harmonize themselves into unanimity with such success that upon only a few fundamentals or implications are there dissentient opinions. One believes that the report has missed the target; another that the recommendations have fallen short; and others believe that the mark has been overshot by excursions into Utopian idealism.

The objections of the minority composed of eight physicians and a clergyman, are to the recommendations in "Organization of Medical Services," and "Group Payment for Medical Services." The minority report of two leaders in the national dental organization is in general accord with the first minority, but in agreement with the majority upon "Group Payment."

The minorities desire changes in medical education, urging—in addition to the present scheme which seems to qualify sufficiently for the care of 80 per cent of the ills of mankind—emphasis upon the development of clinicians and added accent upon the importance of teaching disease prevention. They wish that mere prudential ethics may be strengthened by spiritual ethics and that only those possessing high character and high educational qualifications be admitted to the professions.

Premature specialization and overspecialization will be cured by the special societies acting within themselves, and the evolution of dentistry into whatever its destiny as a department of medicine will be determined by the concerted action of a well organized profession.

The minorities object to contract practice whenever it operates in restraint of opportunity for all competent and reputable physicians in the community, or results in unfair competition or furnishes inferior medical services. The same objections are made to pay clinics when operated for profit by laymen as "exploitation of the public and of the medical profession" through inferior quality of service with no lessening of the costs of medical care to the patient who must add operative charges to the normal or average fee prevailing in the community.

The minority claims overemphasis upon the virtue of group clinics and cites in opposition the large number of groups treating patients under workmen's compensation laws, in active competition one with another, "soliciting patients through paid agents." Many of these groups are under lay control—keeping down costs by employing physicians of low ability, commercializing medical practice, lowering ethical standards, demoralizing physicians into undignified advertising in factories, reminiscent of the old lavatory posters, leading physicians to compete for practice by buying cases for one-third or one-half of their fees and, in collusion with agents, prolonging treatments far beyond reasonable limits and padding their bills, as developed publicly by the Seabury investigation this year, and not denied.

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*Delivered at the National Conference on the Costs of Medical Care New York Academy of Medicine, November 29, 1932.

The minority objects to the influence of this Committee being used in the promotion of new forms of political bureaucracy, feeling that the unsatisfactory operation of the forms of compulsory sickness insurance now carried on in forty-four states under workmen's compensation laws has degenerated into racketeering in our large cities and should be corrected by legislative action which should lead to real revision of these operations and carry them into the administrative hands of those who represent the higher medical honor and higher medical intelligence of the community.

Here the hospital or medical center may furnish the place and the skilled staff service all of which should be amply paid for.

No arguments demonstrate a *quality* of service, in countries where compulsory health insurance prevails, which is superior to the admittedly inadequate and badly distributed service now operating in the United States. Quoting from Simons and Sinai:

"Contrary to all predictions, the most startling fact about the vital statistics of insurance countries is the steady and fairly rapid rate of increase in the number of days the average person is sick annually and the continuously increasing duration of such sickness. Various studies in the United States seem to show that the average recorded sickness per individual is from seven to nine days per year. It is nearly twice that amount among the insured population of Great Britain and Germany, and has practically doubled in both countries since the installation of insurance."

The minority report states:

"It ought to be remembered that compulsory insurance will necessarily be subject to political control and that such control will inevitably destroy professional morale and ideals in medicine. Since a qualified and untrammelled medical profession is the only agency through which scientific medicine can be applied for the benefit of the people, it follows that any plan which destroys professional morale will bring disaster to the public."

Quoting again from Simons and Sinai:

"While the statement might be disputed by insurance societies, a comparative study of many insurance systems seems to justify the conclusion that the evils of insurance decrease in proportion to the degree that responsibilities, with accompanying powers and duties, are intrusted to the medical professions."

This statement is both a challenge to the medical profession and a warning to those who, without proper consideration of that profession, are willing to recommend the adoption of various new plans for the care of the sick.

The minority feels that our Government has strained paternalism far beyond moral justification in the extension of veterans' hospitals and in the hospitalization of veterans with non-service disability and has spent the people's money with inexcusable recklessness. This sorry exhibition should make us all shy of Government invasion into control of any phase of medical practice except, of course, in the field of public health and in the institutional care of those unemployable wards of the State—the tuberculous, the insane, the feeble-minded, or the hopelessly crippled.

The minority objects to the large medical center as projected by the majority on the ground of exclusion of many physicians, of oppressive competition, of big business technique erecting machinery which eliminates personality and destroys personal relations by factory forms. Mere bigness is often a liability. The city of New York is so big that real community interest and civic pride are crushed and the citizen taxpayers are too dumb to protest against a self-perpetuating political machine which rules them.

The minority recognizes the practicability of centering medical service in small places where there are only one or two hospitals and where all of the physicans of the community are permitted to use all of the facilities of the hospitals in a true community spirit, the institution being supported by taxation or by gifts. My personal opinion is that if all hospitals were open to all reputable physicians (not merely the laboratory facilities but beds as well) many of the problems of public service would be solved. I had always believed this to be administratively impossible until it was positively demonstrated to run smoothly in a very large hospital. Places where there are no hospitals and few physicians, dentists, or nurses, must be served in other ways with the entire health service of the county concentrated upon ways of distributing urban surpluses into neglected fields.

The minority favors continued study of group practice co-ordination of the medical, dental, pharmaceutical, hospital, and nursing professions, the study of the application of the insurance principle to the accumulation of reserves, and to the assurance of solvency of institutions.

The "challenge of the future" in the majority report is a vigorous, stimulating statement that the work is not only not finished but only just begun, and that continuous widespread efforts must be carried on through all medical, educational, and all other agencies whose interest leads them earnestly to desire the prevention of disease and the general health of our people.

## THE HIGH POINTS IN THE RECOMMENDATIONS OF THE COMMITTEE ON THE COSTS OF MEDICAL CARE*

Ray Lyman Wilbur, M. D.
Pala Alto

Chairman of the Committee on the Costs of Medical Care

Science has acted like a ferment throughout our whole civilization. The changes brought about by it have been so rapid that they are beyond the conception of most of us. We have completely rearranged our environment without any material change in ourselves. The social responses to the effects of science have been slow and the political ones even more so. Modern medicine built on science has been in the forefront in bringing about these changes.

We now find ourselves with a great mass of usable facts with a splendid body of trained men and women ready to apply them for the benefits of humanity, but without an administrative or economic system which will give all members of our society an even or an adequate opportunity to profit by them. In every advance there are always those who struggle against it and those who must fight old enemies in order to be happy. The mould of the human thought machine changes very slowly. The pattern of emotions, prejudices and habits that make up a large part of human behavior is strangely resistent to the control of what we are pleased to call the intellectual processes.

There is no emotion in science. Its control depends upon the keenest and cleanest use of the mental faculties. It is natural that a considerable portion of those dealing with the sick should have their faces turned toward the past and that they should endeavor to use old formulae for new conditions. The automobile and the associated highways have changed all of the time factors in medical practice. The automobile, the operating table, the microscope, the telephone, the test tube, the Roentgen Ray, the trained nurse, the interne, the mechano-therapist, are indispensable to the modern doctor. Each has its place and each costs money. We cannot care for the intricate set-up of modern medicine by a bookkeeping system such as that of the past, which was built around the notes carried in the silk hat of the bewhiskered, lovable and friendly general practitioner. We cannot wisely carry forward the fears and the shibboleths of the past in facing the social and economic forces of the day. Issues must be faced and not avoided by repeating the out worn slogans. "Contract practice" and "state medicine" must be redefined and "debogie-ized." Waving scarecrows only disturb the unthinking.

The doctor looks harsh facts in the eye every hour of the day. Conditions compel him now to think in terms of medicine for all and to make plans to provide it along sane lines that will keep the great traditions and ideals of the medical profession at work, instead of distorting them into obstacles to progress.

Medicine has been built up step by step through persistent experimentation. The social applications of medicine require the same repeated and carefully controlled experiments. We should recognize that the scientific side of medicine is up-to-date and in full synchronization with the peaks of human achievement, while for the most part the social side and the economic side as developed now are often archaic and ineffective in operation.

The medical profession has been undergoing a dramatic transformation in the last twenty-five years. Just as civilization has been remoulding its environment, so medicine has been remoulded by those instrumentalities that are supplementary and accessory to the use of the trained mind and the trained hands of the physician.

In this country we have had the construction of great medical schools and laboratories. We have put hundreds of millions into hospitals. We have trained tens of thousands of nurses and technicians. The mere operation of the machinery of modern medical practice requires great administrative skill and enormous expenditures. The physician can no longer be independent of these great agencies. He can, though command them and see that they are used for their highest purposes, but in order to do so, he must take part in the business, social and economic reorganization that is required so that these instrumentalities may function and so that he may do his share in seeing that all elements of the population receive a just and fair proportion of medical attention. In order to bring this about, community coordination and some orderly plan that will provide the facilities and that will remunerate the physician and his associates, must be worked out.

Our technical advances are so far beyond our social ones that this will inevitably be difficult, but some of us are optimistic enough to hope that well planned experiments can be put on their way and that from them we will learn how to perform this important task for society without losing those splendid human relationships between doctor and patient that are so vital in the care of the sick.

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*Delivered at the National Conference on the Costs of Medical Care New York Academy of Medicine, November 29, 1932.

The making of experiments is well on its way. In Washington, Oregon and California leaders in the medical profession are at grips with the details of proposals and definite plans. The doctor must recognize that whether he likes it or not something is going to be done. It is better to have it done by him than to him.

You are all familiar with what has taken place in regard to these Veterans' hospitals. You recognize that with the income tax providing large funds and due to the political pressure, we now have nearly a billion dollars going into various forms of veterans' relief. Our Federal Government has the largest and finest set of hospitals anywhere in the world for a particular purpose, and the number of these hospitals is growing. But the men for whom they were built are growing older and before long we will have in this country a great hospital system and only a few old men in those buildings. Then we will really face the question of whether there is something further to be done in the relationship of the Federal Government with the operation of these hospitals for special groups in the population.

We are up against certain forms of State medicine at the moment. We have these problems clearly in front of us to be faced. No one is more fearful of bureaucracy than am I. I have been operating several bureaus in the Government and I know how they go. The more local we can make the conduct of these medical enterprises which have been discussed, the better the results are going to be. Those who know the most about the individual are those near at hand, and if they can make these decisions we are almost sure to have them reasonably wise. I fear decisions in this field made too far afield by legislative groups with authority and with funds. But I also fear that is exactly what will happen if the medical profession fails to go at this job and do it well.

Something definite is going to be done, there isn't any question about that. So we are on our way whether we want to be or not. We have sensed it, I think, first in the Far West. You are conscious of it here. You have dentists working in New York City today, paid for by your welfare funds so that they can have a job The professions are in difficulty. They have not quite analyzed what these difficulties are. They know their income has gone down. But if you will study the reports of this Committee and study the various fields of medicine in different parts of the country, you will become conscious that there are forces stirring and decisions are being made all of the time in these various parts of the country. It is to get those decisions to be carried out along certain definite lines and to keep the medical profession, as the one with the greatest responsibility, in a commanding position that the majority report has been prepared.

Now, if we reduce it to its simplest terms, the problem of providing adequate care can be illustrated by a very tangible human situation. Mary Jones is awakened in the night with a pain that may mean appendicitis. The Smiths down the street are expecting a baby. The Italian family around the corner is worried because little Rose has no appetite and seems to be losing her strength and vitality. What are they to do? All of them know in a vague sort of a way, perhaps, about the great pool of medical knowledge waiting to be tapped. They know the doctor down the street has been to New York and has a fine reputation, but they aren't really on friendly terms with him, and besides, they don't know what his charges will be. Perhaps the corner druggist can fix up some medicine that will do the trick. Then there is the chiropractor up the street. Mrs. Brown goes to him, and he doesn't charge much.

The problem that these families face is crucial. One decision will lead them quickly to scientific medical service; others will cause delay or may completely block their avenue to this pool of knowledge. The problem, therefore, is to devise the kind of an organization which will as far as possible insure that patients quickly reach the proper hands and obtain good service when they get there. Two things are needed: First, a continuing, close personal relation between the medical organization and the consumers of medical service and second, financial arrangements that facilitate prompt attention to the first signs of distress and full use of preventive services.

Now you know that these decisions are being made by the tens of thousands every day throughout the United States. What shall we do? If there is a local set-up that is known, that is sound, that is the one that is going to be called on, then the little girl with a sore throat that really is diphtheria is going to land where she belongs right away instead of having several days delay before there is the diagnosis made and after she has already infected a number of other people in the schoolroom. We must connect up the person that has the need with the expert at the earliest possible moment.

The provision of adequate scientific medical service to all the people, rich and poor, at costs which can be reasonably met by them in their respective stations in life, is of vital concern to everyone here in this country, for in every city, town and village of this country are people suffering from rheumatism, cancer, venereal disease, diabetes, tuberculosis, and other ailments. Thousands of persons, even in "good times," try to get along without the medical service they need. Hundreds of thousands postpone seeing the physician or dentist or going to the hospital because they are afraid the charges will be too high. Even among the wealthy it is only a small percentage who obtain all the preventive care that they really need.

This lack of adequate medical service lays a burden of pain, suffering and inefficiency on this nation which, rich as it is, exceeds what we can afford. The question which faces the American people in the next ten years is not whether we can afford to provide ourselves with satisfactory medical service, but rather, whether we can afford to provide less than adequate health care. Two years ago the Committee on the Costs of Medical Care faced this question and decided that it would proceed on the assumption that the objective was adequate medical service to all. It seems to me that decision was sound and of far-reaching importance.

The Committee, in getting down to its task of devising ways and means, recognized the importance of practical questions; how to use the facilities available, how to take account of the philosophy and temper of the people, and their appreciation or lack of appreciation of medical service, and how far we could go with present and future economic resources.

From the beginning, some of us have stressed that we wanted to build a better system of medical service on existing foundations. Medicine has grown steadily and fruitfully in the last two centuries, and as I have indicated, it has had its most rapid growth in the last two or three decades. Much has been learned that must not be forgotten.

Before presenting the specific recommendations, I think we should emphasize the significance of satisfactory medical service. After a great deal of discussion we agreed that a satisfactory medical service was one which would fully meet the following essentials: 1. safeguards the quality of medical care and preserves the essential personal relation between patient and physician. 2. meets the true needs of substantially all of the people.

It should provide service on financial terms which the people can and will meet without undue hardships either through individual or collective resources. No one who has examined the data which have been gathered by the Committee can doubt that the cost of medical care often constitutes a serious obstacle to a proper distribution of medical service.

A satisfactory medical program also must utilize known preventive measures. The old saw about "an ounce of prevention" is vitally true in the medical field. If we are to keep the costs of medical care within reason, we must make our major economy through the prevention of disease.

It must assist and guide patients in the selection of competent practitioners and facilities. We haven't dodged that question of the choice of the doctor and the choice of the hospital. In the plan for the medical grouping and the medical center, it is anticipated that there would be enough spread of information about the group and enough interest in it so that a considerable percentage of the population would be able to get contact with dependable medical service whenever they required it. It is a difficult thing to try to arrange any roster of physicians on the basis of their competence. You know, those of you that know human beings, that some people would rather die in the hands of an ignorant practitioner that had good bedside manners than they would to survive in the care of a man who did not happen to please them from a social standpoint. That is something that you have to expect and face in human beings.

As Professor Hamilton has so well pointed out, the art of medicine is intricate and the relation of treatment to results cannot be appraised by a layman. Rarely does the patient have the knowledge necessary to judge quality. The expense and suffering which attend a wrong choice of practitioner and "shopping around" add unnecessarily to the human as well as the monetary costs of care.

Finally, adequate and assured payment must be provided to the individuals who furnish service. Unquestionably many physicians are decidedly underpaid for the work which they do and the heavy responsibilities which they undertake. Furthermore, even some of those who have larger incomes are under a constant strain, due to the precariousness and uncertainty of the future. As a matter of fact, in our plan we have hoped that there could be worked out a system by which the doctor could keep himself up-to-date mentally by going away for study and physically by having adequate vacations.

All of these, then, are essentials to a satisfactory medical program. While they are broad and general in character, there are specific plans that can be worked out to meet practically all of them.

Those of you who have examined the report know that the Committee makes five general basic recommendations and suggests thirty or more specific methods for carrying them into effect. Without going into the details of these, I should like to picture for you the way in which the recommendation regarding group insurance and group payment might well work out.

We assume that whatever is going to be done is going to be upon the basis of existing institutions. We have an enormous capital plant which must be used. Whatever we do must bring that into full play. In some places there is already a grouping which makes it possible to use existing units with comparatively little change. Some combinations of institutions and of men can take place in almost all communities. In the larger communities such combinations will not be like the great absorbing corporations and take in everything, but there will be a zoning of these medical centers.

When you get right down to the real question, what we are doing here is to adopt the corporate idea to the practice of medicine, and to bring the efficiency and the economy of that idea into medicine and in the organization, control, management and operation of the accessories of medicine which have become as costly as the actual expenditures for the doctor himself. In any one of these groups we can use in our early experimental period existing personnel and existing means.

In the first place, no one is to make money out of the plant and out of the accessories. They are to be handled as our great volunteer hospitals are, by boards of experts in finance and in administration, who will do this service for the community.

The control of the medical side is to be in the hands of the staff of physicians. They are to work out the professional standards and the procedures as to what shall be done. If the medical profession cannot meet that then somebody will meet it for them. I think they can, and I think they will meet it. Those of us who have had contact with medical schools and hospitals in an administrative way know that we can discover physicians who have a unique facility and a great skill in administration. They can be found, they can bring together these groups, as do the deans of the medical schools. They can gather the men and study them for their particular abilities and capacities. They can decide what specialties shall be represented and how they shall be handled. We know that these things can be done because they are being done right now in a number of places.

It is true that the full scope of the medical center proposed by the Committee is not in operation as yet, but it is merely an extension of what already is being done.

The advantages to the doctor are obvious. He will get a division of expense for these accessories, not having to take the whole load. He will get greater efficiency, greater opportunities for work, more ease in post-graduate study and in vacations, more co-operation from his friends and neighbors, more education from constant association with others.

We will not inhibit by this process the individual choice of the patient who wants a particular doctor. We think that the patient will get more promptly good medical attention. We think that with good service available and understood and paid for, that there will be less call upon the cultist and upon patent medicine. We think that much of the "shopping around" that is so expensive and wasteful in every direction can be largely obviated.

This is but a natural growth of certain tendencies that we find all about us in this country.

There is no use in group organization on one side unless there is a good financial set-up on the other. The only way that I can see for such a set-up is to take advantage of the great funds that are now in use, the endowments for free beds, the great buildings that have been built, and add to that a form of group payment which need not be excessive, which will cover the requirements of the physicians and others operating these plants. We really do not need to work out any great extension of capital investment. We have enough at the present time to try these experiments out and to do something in most of our communities. The charitable contributions which have been made in the past are of immense significance and have been of the greatest advantage. They give us a stable basis from which to work forward. When we add to them these group payment plans for a division of the load of cost and a sharing of the burden of illness, it seems to me that we can within a short time go farther than in any other way.

In such a large city as this one can see certain areas grow up in which these centers can be developed and tried out. We have just had an experience recorded here of the Cornell pay clinic and of what it has been able to accomplish. Dr. Hartwell forgot to say how satisfactory that has proven to many of the patients. I have heard comments from them showing that they felt that some great new thing had been done in opening to them an opportunity to get at this medical pool of knowledge.

When we come to the question that was faced by the Committee as to whether these group payments are to take the form of voluntary or compulsory contributions, naturally we meet differences in viewpoint that can only be worked out in time. We felt in the Committee that it was safer to start off with the voluntary method, for we feared that the compulsory method carried out too soon with vigor and enthusiasm of legislative bodies, that might have members who want to be reelected on a popular cause, might project us into a field from which we might later wish to retreat. But if, after a few years, we have been able to demonstrate that there is a willingness to meet this charge, and that only those fail to meet it who are reluctant or negligent or indigent, then we can see our way toward some plan that may have the compulsory feature in it. In other words, we can develop a place of compulsory health insurance gradually.

The costs, as brought out by the Committee, are not staggering—$20 to $40 per person per year. Using our present facilities, it is not a great cost when we think of how much many pay now who have more than the ordinary amount of illness to face.

Even though medical centers take over many of the functions now performed by various unrelated agencies, there will continue to be need in cities for community study, coordination and the planning of medical facilities. The Committee recommends the immediate formation of professional organizations with lay participation to start in this work. If the service of such organizations prove useful, permanent coordinating agencies representing the various professional bodies and the public should be organized. We have seen in these great community chests what can be done to bring the various social agencies together for such a purpose as the raising of funds and the division of the responsibility of various kinds of relief among the agencies of a community. That kind of coordination and cooperation is possible in the American community, and it is an American thing to do. It still has in it the spirit of the volunteer.

I need not go into the various possibilities in regard to industry and the methods of dividing the load between the wage earner or the man who hires him, but I can point out that in small cities or towns this can be done using the hospital as a center and putting the staff of the hospital in such a position that it is available to all reputable practitioners.

We can also arrange so that these smaller units near metropolitan centers can come in contact with the medical centers in the larger areas, can draw upon them for the service of specialists and make other savings such as are possible in any corporate device for the distribution of functions of any agency.

In the rural areas our problem is more difficult. We will probably have to think there in terms of "medical stations" rather than elaborate hospital centers, of places where patients can come and doctors can go and where such facilities as are possible can be provided.

With the present state of agriculture, particularly in the Southern States, it does not seem likely that any adequate form of rural medical care can be carried out without support from the State or elsewhere. There is not enough in the way of resources. In Canada, as you perhaps know from following these reports, payment in rural areas has been worked out so that the doctor is on the tax roll, and I think that that has worked out unusually well among the farmers of Saskatchewan. It seems to be practical, it seems to be worthy of repetition in our own country.

The plan that we have talked about here has a great reach to it. If the organization is sufficiently extensive and well worked out, we can go from the city to the suburbs. In the cities we can have units, in each community, where the doctors and the lay people can get together and develop these centers. We can also have in connection with that these farm units or these rural units so a man could go from one center to the other by arrangement, so that the unit could tell what the charge would be if anyone was sent up to the next agency for further help.

What we really need in working out this problem is, as Dr. Hartwell has said, interest and leadership. Someone must take hold of it. The reason we asked some of you to come here was in the hope that you would sense what the Committee had done and would stimulate those about you to bring about solutions in your own particular neighborhood.

This thing will not go of its own propulsion. Something, as I said, is going to be done. If it is to be steered by those who are best informed and those most interested, we can look forward to confidence in the result, but if its motivation comes from those who have grievances, who have been left out of the picture, who have a claim on this medical pool of knowledge and are not getting it, then it seems to me we are going to have what is done, done from the wrong angle, and perhaps in the wrong way. Our appeal, as we approach the public with this study of five years, is that you will listen and study over the facts but above all that you will start to work to see whether we cannot begin, in the various communities, experimentation that will bring about within a short time a test of groups of doctors serving groups of patients on a group payment plan, no one plan, but on a plan which can be watched as an experiment should be and can be judged by the actual results obtained.

We hope, too, that this can be approached without prejudice and preconception, that the doctor will leave to one side the various bogies that have been developed, and go at this problem of social reconstruction for medicine in the same way he would take up the treatment of an old disease by any new method, go at it with eyes open and unafraid, but, above all, to go at it with the idea that it offers to the American people the greatest opportunity for happiness that can come to them from any present source.

Think what it would mean if we could give everyone that needs medical attention the kind of medical attention that is possible when he needs it and give it to him on a basis so that he could maintain his dignity and his self-respect. Think what it would mean in happiness if we could get a spread of what medicine can do to all of our people.

It is a worthy object. There is none worthier.

And, in closing, I want to thank the members of the Committee and the research staff for the contributions that they have made in permitting the profession of medicine in the United States, and the associated professions, to do a better job than they have ever done in the past in the care of our sick.

## ORIGINAL ARTICLES

## HOW CAN YOU AS FAMILY PHYSICIAN LESSEN THE FREQUENCY AND COMPLICATIONS OF LA GRIPPE, INFLUENZA OR FLU?*

ROBERT WALTER BLEDSOE, M. D.

Covington.

The title of my paper this afternoon is "How can you as Family Physician, Lessen the Frequency and Complications of La Grippe, Influenza or Flu."

I selected this because I feel that unlimited good may be accomplished at this time, by forcibly refreshing your minds with suggestions that are well known to each and everyone of you, but which are commonly neglected, when and where they should be utilized with extreme advantage. I doubt very much if anything I have to say today will be new to you, but if I can awaken in you the absolute necessity for employing every available precaution, and get your hearty co-operation, to conscientiously preach these suggestions daily for the next few months, by the time the warm, balmy, sunshiny days return, when again we may put away our overcoats and dispense with artificial heat, I am profoundly certain that you will have every reason to look back with pride upon your accomplishments, and feel that, truly, you have acted the part of Physician as he was originally and still is intended to be—A savior of humanity.

Gentlemen, I may be unduly pessimistic, but I feel that the next three or four months are going to be the worst during our professional lives. All we need now to precipitate a catastrophy regarding the health of the country as I see it, is the onset of cold weather. Last year I hoped and prayed for a mild winter that the suffering with resulting infections might be minimized. I got my wish, we had a wonderfully mild winter season for which thousands should feel thankful, as for this reason alone they are alive today. If we have another mild winter before us this paper will, to a certain extent be null and void, however, should we experience one of the old time winter seasons with its cold rains, snow and zero temperature, heavy atmosphere and little sunshine, I hesitate to prophesy as to the result, as La Grippe will not only flourish but increase in virulence by transmission from host to host.

I say, gentlemen, with these conditions, in addition to what we now have, namely, inadequate and ofttimes improper food, lack of sufficient clothing to keep the body warm, and little or no means available for heating the homes of the countless thousands who are now, and for months have been, unemployed and without income, and, even in the case of those frugal ones who saved for a rainy day, they have by now too often exhausted all their savings. These conditions alone are sufficient to lessen the individual physiological resistance to a point where La Grippe, Influenza or Flu, call it by whichever name you choose, will become rampant. However, we have two other very important factors to consider, which lower the resistance to disease, namely the constant worry resulting from the inability to find employment of any kind, nor any prospects for the near future. The last factor, but by no means the least injurious is the stupendous consumption of homemade whiskey commonly known as "moon," and possibly to a certain extent less detrimental, the homemade beer. Considering these combined causes, compels me to look with the greatest apprehension upon the outcome of the next few weeks.

Gentlemen, if war threatened, would we not fortify ourselves to the limit of our ability? Would we not resolve to stand shoulder to shoulder and fight to the last ditch?

I beseech you to fortify now, and resolve to stand shoulder to shoulder with the laity, by giving all known instructions, encouragement and aid possible. Because, if we have a cold winter we will have a war that will mean more death and destruction than if it was a war between nations, or within a nation.

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*Read before the Licking Valley Medical Society at Newport, Ky., 8, 1932.

You as physicians are the highest officers, the generals, if you please, in this battle. You will be looked to for guidance, encouragement and consolation. Do your part bravely and do it well, even though it does impose apparent hardships at times, persevere and persevere some more, so as to not leave any dead and maimed on the battlefield that could have been saved by careful precautions earlier in the conflict. I implore you to begin to fortify now, before the trumpet of the cold winds calls you to the colors. Fortify by warning your patients with colds or coughs, mild as well as severe ones, of their contagiousness, how easily one can transmit it to the entire family, by coughing and sneezing without covering the nose and mouth with handerchief or gauze. Explain to them how the droplets of secretion too small to be seen, from nose, throat or bronchi, are coughed or sneezed out into the floor or furniture, and how these germ laden droplets dry and in a few days are found microscopically, floating in the air of the room, to be inhaled by the innocent and beloved members of the family.

At every opportunity preach the immediate isolation of each individual that is even mildly ill. Educate your families to look upon mild colds and even slight fever with as much importance as if they were smallpox or worse. This isolation can be accomplished with no great hardship in most instances and will be faithfully carried out if you will only take the time to instruct them carefully.

Old rags, gauze or paper napkins at 10 cents a thousand may be used and destroyed promptly by burning.

Be very explicit in your advice against blowing the nose hard at any time, because by so doing they endanger the middle ear to infection, abscess and possibly mastoiditis or sinusitis. Explain to them that the correct way to blow the nose is to hold the handkerchief or gauze close to the nose, but do not press on either nostril, leaving both sides open when blowing, because during a cold in the head, first one side of the nose is swollen and then the other, and it is best to let the larger volume of air pass through the unobstructed side, thereby lessening the probability of sinus involvement as a complication. Please use your utmost influence to educate persons against the filthy and pernicious habit of clearing the nose on the street or even on their own premises by placing a finger on one side of the nose and blowing a gob of mucus or pus from the other side.

I am sure you will be able to accomplish much toward putting a stop to this ignorant habit, if you will gently but thoroughly enlighten them as to how dangerous it may be to the health, and possibly, the life of some innocent individuals.

Expectorations from those confined to bed are usually satisfactorily looked after and destroyed by fire if gauze or paper is used, or by antiseptics when the cuspidor is available. However, in the early stages of a cold or during a mild cold, and in the convalescent, the expectorations do not receive the important attention that they warrant. Teach all your patients to take such care of their expectorations that other persons will be in no wise jeopardized.

Instruct your patients and their attendants to have the hands and face, especially around the nose and mouth, if not more, washed several times a day with soap and hot water. If any children are present, no matter how young, make these instructions explicit and simple so that they may unconsciously grasp the idea. Take advantage of this golden opportunity to teach them the beauties and benefit of cleanliness. Who knows but that such instructions may prevent a death later in the life of one of these youngsters.

Do not overlook fatigue as a very important factor in lessening ones resistance. This caution applies particularly well to you as physicians during the stress of epidemics. Conserve your own health and resistance and ability to do good, by faithfully keeping yourself in the best possible physical condition by proper rest and the proper kind and quantity of food. Many changes have been made in households during the last few months. I dare say you will find many small gas stoves used this winter by those who heated with furnaces previously.

Upon entering a home, consider yourself an inspector as it were. Be a close observer, be on the lookout for gas stoves that are rendered dangerous by lack of flue connections, worn out fronts, tops or pipes, and possibly rubber tubing as connections, which may be accidentally disconnected during the night. Observe the ventilation and instruct accordingly. The less visitors to the sickroom, the less danger is there to the transmission to any disease; hence discourage visitors.

Become a crank on cleanliness, a fanatic if you will, provided it is in the right direction. Practically every patient with fever, cough or cold in head is a potential "Flu" case and should be so considered, and you as the family Physician are derelict in your duty if you do not take the time and interest to explain these many apparently absurd precautions which if diligently followed will frequently limit the disease to the one patient, instead of running through the entire family as has been your experience.

Repeat you instructions day after day—to family after family. Tell them over and over again until you get blue in the face. It is well worth the effort. The little details that are common knowledge to you, are unknown to most of the laity, and looked upon with marked indifference by many who are acquainted with them, largely because they are inadequately stressed by the family physician.

Persistency bears fruit, and you will be astounded at how many of your admonitions are tucked away to be remembered, and sometimes in the future when one of the family goes down with the "Flu" you will be agreeably surprised upon your first visit, to find that your precautionary measures have already been put into effect. And, by the way, do not pin all your faith in the so-called intelligent class, nor always expect the greatest co-operation from them, otherwise you will at times be disconcerted by the display of a total absence of common horse sense.

On the contrary, at times the apparently unintelligent are most thorough in following you, provided you are sufficiently explicit and give simple reasons for doing thus and so.

Your patients look to you for guidance. If perchance you have reason to be disappointed, take inventory of yourself first, before criticising; possibly in your hurry you were amiss. Slipshod instructions by you, lack of minute description of details and reasons too much taken-for-granted by you, are conducive to feeble efforts or less on the part of the instructed. They feel and rightfully so, that if your admonitions were important that they would be given in a definite and positive manner.

In the line of treatment permit me to suggest alkaline douches of nose every two or three hours, using either my hypotonic solution, sodium bicarbonate or Dobell's solution properly diluted, these can also be used as a gargle. Follow with a mild, mind you, *mild*, menthol camphor oil spray.

Control cough with your preferred mixtures, support strength with whiskey, milk, orange and other fruit and vegetable juices or extracts. I believe that a tremendous amount of recuperative powers may be expected from the use of milk, three or four quarts daily, and more when it can be taken, orange and other fruit juices and spintrate or powdered spinach.

The bowels should be cleared daily by enema instead of the use of cathartics of any kind. The muscles of the intestinal tract are weakened and toxic so why whip them up and cause nausea which interferes with the patient's ability to take the needed nourishment, also more or less unnecessary discomfort from the griping pains. Moreover better clearing of the intestinal tract can be had from a one quart plain water enema slowly given. Is it not reasonable to suppose that proper diet and proper elimination by daily enema will keep your patient in better condition and markedly lessen the chances for complications of any sort, also hasten recovery?

To those of you who may object to the use of the enama daily over a period of weeks, permit me to suggest that your fears are not well grounded, that if properly given they do not annoy the patient, neither do they weaken the bowel nor create the enema habit.

## CLINIC PATHOLOGY CONFERENCE; CASE I. FOR DIAGNOSIS*

J. R. GOTT, M. D.

Louisville.

H. D., M. M. C. Age 46 years, Reg. No. B31012. Admitted 4-7-32. Died 4-14-32.

CHIEF COMPLAINT: Dyspnoea and edema of extremities. The dyspnoea was first noted nine to twelve months ago on exertion. About six months ago he began having dyspnoea at rest and this has grown worse with attacks of "asthma" and orthopnea, swelling of feet and ankles, marked palpitation of heart, tightness and fullness of abdomen. He has had a cough with expectoration of whitish, muco-purulent material for some time; has had frequent spells of dizziness, spots before eyes and occasional headache.

PHYSICAL: Shows a fairly well developed and nourished male negro adult, sitting up in bed, gasping for breath. Skin is cold. Extremities: Marked pitting edema of ankles and legs. Head, ears and nose negative. Eyes: pupils react to light and accommodation. Neck: Veins prominent and pulsate. Chest: Respiration chiefly abdominal. There is impairment from 4th rib down to the right and on the left from 5th rib down. The note is almost flat. Auscultation: Breath sounds are exaggerated in superior portion with some moisture in the bases. Breath sounds are suppressed; many rales. Heart: Apex beat felt in 6th inter-space outside of nipple line. On percussion heart is moderately enlarged to the left. Heart sounds are very faint at the apex, loud and rapid in pulmonic area. No murmurs. Blood pressure 100/85. Abdomen distended, with some flatness in the flanks. Liver two to three fingers below the costal margin.

LABORATORY: Wassermann 4 plus. Blood count: RBC, 3,190,000; WBC, 7,000, 55% polymorphonuclears.

URINALYSIS: Color amber, appearance cloudy, reaction acid, specific gravity 1.030, albumin 3 plus. Sugar negative; loaded with hyalin and fine and coarse granular casts.

ELECTROCARDIOGRAM: Shows sinus tachycardia; defective interventricular conduction.

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*Read before the Jefferson County Medical Society

X-RAY: Heart is greatly enlarged. The left border extends almost to the axillary line. Neither border can be definitely visualized owing to the marked increase in density of the lower portion of left lung. There is possibly some fluid in both bases.

### DISCUSSION

**J. Rowan Morrison:** Dr. Gott gave the blood pressure in this case as 130-80, and I read it as 100-85; but that does not make any difference, I am here to "shoot" and "shoot" I will.

I think this is a very excellent exercise to check our interesting and excellent guessing of the symptoms produced in the living man with those that are found in the autopsy. In the first place, my experience would lead me to believe that some form of non valvular heart disease was present and that the symptoms were particularly severe because the patient had not been seen for a long period of time and he died within seven days from the time he came to the hospital. He must have been "pretty well shot" I will say that much.

This patient had 3,190,000 RBC, which I would say is about the average amount of RBC we would expect to find in such a severely ill patient. My impression of this case would be a myocardiac degeneration; and taking the blood pressure (100-85) into consideration, which was taken just a few days before patient died, I would not be surprised if there were not an aneurysm present. Now, as far as the lung is concerned, you might say that with flatness from the fourth rib down on the right and from the fifth rib down on the left, you might have an effusion or a pleurisy. With the absence of crepitant rales, however, we would expect fluid from cardiac failure rather than a pneumonia. While we are guessing, I would like to guess that he had lues, and that he had a mighty big heart. He had lues and heart disease. He also had a 4-plus albumin; this would suggest in my mind a congestion of the kidneys and does not indicate to me that he had nephritis because of the high specific gravity that was found in the case. Blood chemistry would have been of considerable value.

**Leon L. Solmon:** A case similar to the one, under discussion, was recently seen by me at the Marine Hospital. Not a few such cases are commonly met with by the physician in general practice. Especially is this true, among negroes. Where they do not respond to rest and digitalization, response is sometimes quickly apparent after the use of antiluetic medication. The heart is usually enlarged; albumin is present in considerable per cent; a various assortment of casts is found; very frequently the blood pressure is high, though, if the case is seen after compensation has given way to a degenerative state of the myocardium, the pressure will be low. Where rest and digitalis bring about no improvement, and antisyphilitic treatment results in no benefit, lethal termination usually follows in short order.

In private practice, with individuals in a higher stratum of society, improvement has not seemed to me to be so prompt as among the poor, hard working classes. Here, with the patient brought into the hospital, afforded rest, digitalized, properly fed and relieved of worry and toil, the result is sometimes surprising.

**Morris M. Weiss:** The symptoms which this man had were undoubtedly cardiac in origin. It remains now to determine the etiology and anatomic lesion or lesions present. It is "begging the point" to say that the patient had chronic myocarditis or chronic non-valvular heart disease since these are indefinite terms and do not enable us to arrive at an etiological diagnosis. The progressive and rapid cardiac failure, the age of 46 years, and the 4-plus blood Wassermann should make us consider syphilis as the etiology. The anatomic lesion is more difficult to determine. From the x-ray a diagnosis of cardiac enlargement is warranted. I do not believe that the enlargement is the result of hypertrophy since aortic insufficiency is the only syphilitic lesion which results in cardiac hypertrophy and this patient did not have this lesion. am inclined to explain the cardiac enlargement on the basis of a ruptured aneurysm without attempting to locate the aneurysm. The final diagnosis then is: Syphilitic Heart Disease with Ruptured Aneurysm.

**A. J. Miller:** In reporting the autopsy of H. D. examination revealed some edema of the lower extremities.

Nothing remarkable was noted in the abdominal viscera except that the liver showed a marked definite passive congestion and a few old scars, which puckered the surrounding liver substance slightly. Microscopic study of these scars gave the impression that they were small gummata in the late stage of healing.

The kidneys were slightly large and showed some evidence of chronic passive congestion.

Lungs were slightly heavy because of edema and the vessels and walls of the air sacs showed some damage by chronic passive congestion.

The aorta was slightly enlarged and the intima showed definite light colored plaques quite typical of luetic aortitis. Sections of this vessel revealed typical pathology of this lesion.

The interesting finding was in the heart. There was hypertrophy and dilatation of all walls and chambers. The parietal pericardium was firmly adherent to the viscera by old dense fibrous adhesions. The left ventricle was connected with a spherical aneurysmal sac in the region of the left border, about one-third the distance from the apex to the base. The myocardium could be seen forming the expanded wall of this sac and its cavity was almost completely filled with old necrotic, but firm blood clot. Sections of this lesion showed the typical pathology of syphilis.

There was some coagulation necrosis near the cavity with old granulation tissue at its periphery and a moderate infiltration of lymphocytes.

Interpretation of the post-mortem findings, then, would indicate syphilis as the primary disease which affected the aorta and heart muscle to the greatest extent; the formation of gummata in the left ventricle wall, resulting in communication with the cavity of the ventricle and the aneurysm of this chamber. Rupture was probably prevented by the adhesive pericarditis, the specific nature of which is not determined.

The chronic passive congestion and edema were evidently the result of syphilitic arteriosclerosis and myocardial aneurysm. The immediate cause of death is believed to be myocardial failure, secondary to myocardial aneurysm and syphilitic aortitis.

## CLINIC-PATHOLOGY CONFERENCE; CASE II. FOR DIAGNOSIS*

E. K. McLain, M. D.

Louisville.

Present Complaint: 1. Cramping pains throughout the abdomen—more marked in lower portion. 2. Constipation for past three months. 3. Gas and distention constantly, but increased by food or fluid. 4. Recent vomiting.

Past Illness: Patient experienced a rather sudden onset (with 3 to 6 hours) of pain in entire abdomen. Numerous home remedies were used with but slight relief of symptoms. Then consulted his doctor who gave him much castor oil followed with paregoric or other opium derivatives. Pain would become unbearable at times, and patient noted that he felt better in a sitting posture. During the latter part of this illness (past 6 weeks) he sat in a chair most of the time "because he felt better that way." His relatives and patient himself noted a definite transient icterus of the skin and sclerae. There was no mottling of this icteric discoloration of the skin. He has lost 35 lbs. in weight within the past ninety days, and has been unable to retain much nourishment during that time. Recently he has felt short of breath, but has had no edema. Has been vomiting food and fluids the past two weeks.

Past History: Was normal as a boy and young adult, as far as health is concerned, but has noted a definite tendency to be constipated since 1920. States he remembers a rather sudden onset of this because he "never had to take medicine for his bowels before." Had no childhood diseases—or typhoid, malaria, etc. Used coffee and tea moderately—no drugs—had never drunk intoxicating liquors at all. Used tobacco only slightly. Married six years. Three children living and well. Wife had no other pregnancies.

Physical Examination: 5 feet, 6 inches, 110 lbs. Blood pressure 124/82, temperature 99.4, pulse 84, respiration 24. Inspection reveals a young man of approximately 29 years of age, showing a marked state of malnutrition and loss of weight. Skin is flabby and moderately moist with a definite slight icteroid tinge which resembles the bronzing of Addison's disease, except for the greenish tinge. No petechiae present. Eyes react to light and accommodation normally. Sclerae injected and slight icteroid tinge. Conjunctivae are pale. Mouth: Throat reddened. Tongue dry and coated with a whitish yellow coating. Teeth fair but show much dentistry. Gums show slight infection at junction of gums with teeth. Lips dry. No tongue ulcers or lip blisters. Neck: Greater vessels of neck prominent and pulsating. No thyroid enlargement or pulsation. No cervical adenopathy can be palpated. Chest: Lungs clear throughout to auscultation and percussion. Inspection shows definite engorgement of the superficial veins but no true caput medusae can be seen over the chest and abdomen. Heart: Accentuation of second sound, otherwise negative. Abdomen: Greatly distended with gas. Liver border three-finger breadths below the costal margin. No rigidity. Fluid in lower fourth of abdomen when patient is in sitting posture. No areas of tenderness, except slightly so over the epigastrium, upon deep pressure. Generalized tenderness and discomfort, spleen not palpated, abdomen has the "doughy" feeling of a tuberculosis gut after purgation. Extremities: Negative except for atrophy of malnutrition and disease. Reflexes: Biceps sluggish. Knee jerks sluggish.

Laboratory: Urinalysis, amber color, acid reaction, specific gravity 1.035, trace of albumen, sugar and acetone negative, diacetic negative, indican negative, no casts, no red blood cells, occ. pus cell, occ. epithelial cell, occ. bacteria. Blood: Hb. 75%, R. B. C. 4,090,000, C. I. .9, W. B. C. 7,600, poly 73%, small lymphocytes 23%, large lymphocytes 1, eosinophiles 3%. Icterus Index 9. Vanden Bergh: direct and indirect reactions negative. Sugar 92. 2. Urea nitrogen 12.0 Cholesterol 240.

### DISCUSSION

**J. Garland Sherrill:** Diagnosis in a given case is arrived at readily, if the symptoms are clear-cut and typical, and are confirmed by physical findings; but when the symptoms are atypical and the physical findings are indefinite or if they are misleading, error is likely. Most of the errors in diagnosis are the result of failure to elicit one or more symptoms of importance in the history of the case or by failure to obtain certain facts by careful physical examination. In some cases where symptoms point to certain evident pathology, other complicating lesions may be overlooked. All organs should be examined during a physical examination. One of the tendencies of the profession at this time is to ask a consultant to see a patient in the absence of the physician in attendance. This practice is reprehensible, since each observer may overlook some important detail and fail to obtain facts of importance from the patient. A consultation should mean just what the word implies. Moreover, the patient feels that his condition deserves the consideration of all the physicians in attendance. In this particular case, and in consideration of this clinical report, one labors under the disadvantage of not having seen the patient. I fully realize the difficulty of arriving at a correct diagnosis in many cases where all the possible clinical facts have been elicited and the patient is under direct observation; so your indulgence is asked if we are led astray and fail to arrive at a correct conclusion from the limited facts before us.

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*Delivered before the Jefferson County Medical Society, June 6, 1932.

The outstanding facts in this case as I see them here are: (1) sudden onset some six weeks ago; (2) cramping, severe pain mostly in the lower abdomen; (3) constipation,—mild since 1920, and marked during the past three months; (4) constant gaseous distention, increased by food and drink; (5) loss of flesh, 35 lbs. within 90 days. There was vomiting, which was not described as to suggest obstruction of the bowel low down. There was some cardiac discomfort, apparently since he was able to be more comfortable in the sitting posture than when in the reclining position. Gall-stones in the cystic duct sometime is relieved when patient sits up and the gall-bladder falls forward. This, of course, would not account for the continual distention throughout the abdomen for such a long period of time. I shall run briefly over some of the things that might be thought of in this connection. Take hernia. I have seen mistakes made in hernias of small size yet causing distention and discomfort which were very important in the final determination of the case. Naturally, hernia also would cause such sudden, sharp pain and distention but would not likely cause a 35-lb. loss in weight. Appendicitis would be accompanied by more pain, more fever, and the distress would be more acute. Pancreatic cyst. Onset of pain is usually sudden, accompanied by fainting. Pain is extremely severe, and later there is marked loss of appetite and perhaps there is a tumor. Next, tubercular peritonitis, to explain the "doughy" feeling of the abdomen. Third, perforated ulcer, in which the pain is more acute than in this case. The question is what are you going to make a diagnosis? You can only make one diagnosis; consequently, can make only one mistake. The symptoms point more definitely to something pressing on the duct of the gall-bladder, tuberculous peritonitis must be considered as likewise cancer. I have seen cases of tuberculous peritonitis when there was a definite stone in the gall-bladder.

### Clinic-Pathology Conference Case II. For Diagnosis

Autopsy Findings by H. M. Weeter, Louisville
Mr. F., 31 Autopsy 36.

September 16, 1932

Body is that of a young adult male. There is marked emaciation, moderate jaundice.

The abdomen is distended and fluctuant. The abdominal cavity contains between one and two liters of slightly turbid straw fluid. The stomach and intestines are distended.

The liver is 50% or more infiltrated by tumor tissue.

The gall bladder is practically empty and buried in adhesions.

The pancreas is enlarged to three times normal size and consists almost entirely of tumor tissue.

The spleen is four times normal size and shows increase in fibrous tissue throughout.

There are scattered nodules in both lungs.

Heart examined through pericardium is negative.

Kidneys are enlarged and pale and congested.

**Diagnosis:** Carcinoma of pancreas with extention to liver.

**Microscopic Description.**

Sections of pancreas show an adenocarcinoma.

Sections of liver show metastatic infiltration by cancer tissue also marked sclerosis and round cell reaction.

Spleen shows increased fibrosis of reticulum.

**Final Report:** Carcinoma of Pancreas.
Metastases to Liver.

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**Treatment of Tabetic Gastric Disturbances by Intravenous Injections of Atropine Sulphate.**—Alajouanine and Horowitz call attention to the almost constant favorable results they obtained in thirty cases of tabetic gastric disturbances treated by intravenous injection of atropine sulphate. The treatment consists of the injection intravenously of from 1 to 3 mg. of atropine sulphate, once or twice daily, for several days. The group studied included patients with sensory and sensory motor gastric disturbances, sometimes with the sympathetic system, sometimes with the vagus nerve predominating; the attacks were brief, from three to four days, or prolonged from two to three weeks.

## CLINIC-PATHOLOGY CONFERENCE; CASE III. FOR DIAGNOSIS*

G. L. Dyer, M. D.

Louisville.

Fmale; Age 30 years. Occupation: teacher.

Family History: Negative for cancer, epilepsy, tuberculosis, and syphilis.

Personal History: Negative except diseases of childhood.

Present Complaint: Started in 1929. Had fainting spells, no convulsions. Doctors in attendance diagnosed her trouble as Petit mal and ordered luminal. Spells gradually and progressively became more severe, except when taking large doses of luminal. Did not get better. Lost weight and strength. Had terrible headache. Marked weakness on right side of body; had bulging of eyeballs; disturbances of vision, right pupil dilated, left pupil contracted just prior to entering St. Anthony's Hospital, February 2nd, 1932. Was in state of semi-consciousness for two weeks before admission to Hospital, involuntary stools and incontinence of urine; not able to articulate, swallowed with great difficulty. Great muscular weakness in right arm and leg; anaesthesia on same side. Bulging of eyeballs, very marked. Pupils did not react to light. Eye grounds negative for choked discs.

Heart: Negative. Lungs: Negative. Abdomen: Negative. Genito-Urinary System: Negative. Menstrual History: Negative.

Laboratory Findings: Urine examination negative. Blood count shows secondary anemia. Blood Wassermann and Kahn negative.

Spinal Fluids 8 to 10 cells; globulin present. Wassermann and colloidal gold both negative. Spinal fluid pressure 440 to 480 mm. Hg.

X-Ray: Shows pressure markings throughout skull and apparent thinning of skull in left frontal area.

Progress: Patient's pulse ran from 100 to 180, and on February 8th not able to count it most of the time. Respiration 28, ranging to 10 toward the end. Temperature ranged from 98 to 106 axillary, latter at time of death.

Death occurred at 8:00 A. M. on February 9th.

Post mortem performed on February 9th, at 9:15 A. M., by Dr. John Alllen is as follows:

Since clinically this was a brain case, a complete autopsy was not done.

The brain removed in usual manner. Gross inspection revealed no cortical lesions; a slight bulging of convolution in right occipito-parietal region. Brain fixed and cross sections revealed a right sub-cortical occipito-tempero-parietal tumor approximately extending practically throughout entire right hemisphere. Tumor non encapsulated, diffusing into surrounding brain tissue. A slight central necrosis with old hemorrhage.

Microscopical tumor composed almost wholly of astroblasts. Structure loose, cells contain large amount of cytoplasm, and some show two or more nuclei. No mitotic cells.

Gross and Microscopical Diagnosis: Astroblastoma. These tumors are sub-cortical and usually occur in the cerebral hemisphere. They are slow growing though infiltrating. They are tumors of adult life and have a survival period of from three to ten years.

### DISCUSSION

**Jno. J. Moren:** I believe that we can come very close to a diagnosis. I can say that something is wrong within the skull—at least we can come that close. This history is not uncommon when dealing with brain conditions. We have the history of convulsions, but they are not typical of Jacksonian epilepsy. If you had a typical Jacksonian epilepsy, the trouble would be found in the middle area, so we can say in this case that the pathology is not in the middle area. The most striking thing about the history is the disturbance of vision with the right pupil dilated.

Disturbance of vision without choked discs, might lead one to judge that of course the headache was not acute and it is not a picture of acute cerebro-spinal fever. The possibility of a tumor must be considered. And, the question comes up that with persistent absence of reflexes on the right side, it is perfectly possible that this may be due to an intra-cranial condition,—especially a lesion about the parietal lobe. I have seen abscesses in the parietal area give rise to diminution of reflexes in the lower extremities. It would be an interesting thing if patient had no co-ordination in the upper extremities.

My conclusions are that with hemiplegia on the right side, a disturbance of sensation, with no history of any one cranial nerve lesion or cranial nerve symptoms, that this was possibly a glioma of the right occipital lobe with manifestations of right hemiplegia from pressure. A tumor pressing on the opposite side, might give rise to hemiplegia on the right side. Another question might come up as to whether there was a disturbance of glandular secretion as manifested by disturbance of vision and other thyropathic signs, such as exophthalmos. It might be that this condition added to the distressed physical symptoms, would give the picture shown here. I feel reasonably sure that the lesion here is located in the right occipital lobe. Whether this has produced hematoma in addition to disturbance of secretion, I can not say.

**Glenn Spurling:** I should like to make a few remarks about this case, inasmuch as I saw the patient before death, and particularly since I know nothing of the autopsy findings. At the time I saw the patient she was moribund. No chronological history as to symptoms was possible; therefore, an exact localization of the tumor was most difficult. The x-ray examination disclosed changes in the skull, which I interpreted as being due to a tumor in the left frontoparietal region of the brain. I felt that it was probably a glioma. However, it was difficult for me to reconcile the flaccid type of paralysis in the right arm and leg with this diagnosis. My opinion as to localization, therefore, would have to be a slowly growing glioma of the left frontoparietal lobe.

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# DIFFICULT FRACTURES*

W. Barnett Owen, M. D.

Louisville.

In consideration of the treatment of fractures, methods of diagnosis and treatment should be based upon the known recognized fundamental principles, with such deviations as are thought desirable in view of the age, occupation of the patient, type of fracture, complications, environment, facilities at hand, and the familiarity of the surgeon with the proposed method to be employed—bearing in mind the desirability of anatomical reposition, with maintenance of reduction for a sufficient period of time for bony union to ensue, employing such principles as are best suited for the individual case and which will most probably be productive of the best functional results, without pain, in the shortest time and with the least danger to the patient. The surgeon should employ the method with which he is most familiar and which has been productive of the best results in his hands.

A detailed history of the patient should be taken, with the clearest possible history of the character of the accident, or cause of the fracture, or fractures. The closed method of reduction should be employed when in the judgment of the surgeon it is thought that good functional results, without pain, are most probable, even at times at the sacrifice of moderate anatomical perfection.

Open reduction should always be employed in complete fractures of the olecranon and patella and in a very large percentage of intra-articular fractures, as function without pain depends very largely upon perfect anatomical reposition. Great care should be taken to see that adequate nerve and blood supply exists before, during and after treatment. Duration of fixation depends upon the age of the patient, bone fractured and location of the fracture. There should be early inspection and institution of heat, and light massage. Passive motion should be determined by the degree of healing and parts under consideration but never to the point of production of pain; active motion is the most important of all but never until healing is sufficient. Again, that is the question of judgment on the part of the surgeon. We have the greatest success in the treatment of long bones by the employment of position and traction, preferably in a large percentage of cases with skeletal traction, either by the use of the Steinmann pin or Kirschner wire. Any amount of weight can be employed that is desirable and with practically no pain or danger to the patient.

X-ray films should always be taken before and after reduction—anterior posterior and lateral views. Comparative x-rays should be made very many times, which is frequently of great importance.

The fundamental principles employed in the management of fractures are well known to those who do this class of work. Therefore, it is unnecessary to go into detail. Instead, will try to demonstrate in a practical way, certain character of fractures treated by us, outlining the conditions, illustrating them by lantern slides of x-ray films before and after treatment, also by the presentation of a few cases.

Case I. J. D. E., Age 40. Had a T fracture of the humerus, January 21, 1921, about 3″ above the elbow joint, caused by attempting to crank a sea-plane, which backfired, striking the arm just above the elbow joint. This man was operated within two days after the injury, by a very competent surgeon in New Orleans, who removed a broken fragment of bone and applied a Parham-Martin band. This band was left in position until May 13th, at which time it was removed. There was no union between the broken fragments, but a rarefying osteitis. He also had a severe injury to the musculospiral nerve, which resulted in a drop wrist. The nerve was repaired and the Parham band removed at this operation. Subsequently, in October, 1922, a massive on-lay graft operation was performed. In about six months time, following the nerve suture there was definite evidence of return of power in the hand, which was very gradual thereafter. An external supporting spica cast to the body shoulder and arm was worn for about three months, at which time it was thought that sufficient bony union had taken place to remove the external support. It has been ten years since the operation and it has resulted in good restoration of function, without pain; firm bony union having taken place.

Case II. R. S. age 27, sustained a complete fracture of the left olecranon, with considerable bony separation and two or three small bony fragments constituting the comminution. Operation performed January 6, 1932, which consisted of a three inch longitudinal incision made over the olecranon and approximal end of the ulna. The broken fragments were exposed, blood clots and loose bony fragments removed. Through drilled holes number three chromic cat gut, doubled, was passed through the approximal and distal ends of the broken fragments in a mattress suture fashion. The broken fragments were perfectly approximated, the periosteum and superficial fascia were sutured with number one plain cat gut; wound was closed without drainage. It was found that the arm could be flexed to right angle, without putting any undue strain on the fracture line. Plaster splints were applied, holding the arm in the above mentioned position for a period of six weeks. There is now fairly firm union and very excellent position, with almost complete restoration of function, no pain.

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*Read before the Medico-Chirurgical Society, Louisville.

Case III. C. L. P., age 38, was struck by an automobile April 5, 1931. The injury which resulted was caused by a direct blow over the approximal head of the left fibula, which caused a fracture to the head of the fibula, with no displacement. Leg was immediately forced in the position of extreme knock-knee. Case was seen by us at the Norton Infirmary, April 7, 1931, at the request of Dr. Wallace Frank. Diagnosis: Rupture of the internal lateral ligament and capsule of the joint, which was verified by an open operation performed April 8, 1931. A 6″ medical longitudinal incision was made, which showed the internal condyle of the femur just beneath the skin. There was a tremendous blood clot in the knee joint, which was irrigated with normal saline solution. After this had been thoroughly cleaned the internal condyle of the femur was replaced in normal position, with the capsule of the joint on the outside. The capsule was then sutured with continuous sutures of number one chromic cat gut. The internal lateral ligament, which was found to be completely ruptured, was also sutured in like manner. Deep and superficial fascia was then closed with number one plain cat gut; skin closed with black silk, without drainage. Plaster dressing was then applied with the leg in complete extension, with slight forcible tendency to bow leg, in order to take the strain off the internal injured tissues. This dressing remained on for six weeks, after which it was removed and followed with a long leg brace, with a free joint at the knee. Brace was applied to permit flexion and extension but to prevent lateral strain. This brace was worn for about six months. Final results: Complete restoration of normal range of motion and function. However, the leg is not quite as strong as the other but we are fully anticipating a return of normal muscle power at a later date.

Case IV. H. L., age 45. On January 6th, 1931 fell from a building, which resulted in a compound oblique fracture of the right femur, at the juncture of the middle and lower thirds, and an oblique fracture of the left femur at the juncture of the middle and lower thirds, with a stellate incomplete fracture of the left patella and crack of the sacrum on the right side. Both legs were placed on a double incline plane, which held the thighs in the position of forty degrees flexion at the knee. Steinmann Pin was placed through the femur, just above the condyles, laterally. Both femora were treated the same way. Fifteen hundred units of anti-tetanic serum were given; skeletal traction was placed on the lower femora; thirty pounds on each leg; the right leg did not have sufficient pull, so forty pounds were placed on the right leg for about ten days to over-come quite powerful contracture of the thigh muscles. The left pin was removed March 26th and the right pin removed two weeks later. The left leg healed more readily and more solidly than the right, the right being the compounded one. A long leg brace was applied on the right leg to prevent bowing of the femur, because union was not sufficient to go without support. This was worn for about four months. Final result: Patient has practically complete restoration of function, solid bony union in good position; patient now working at former occupation.

Of the last twenty central fractures of the neck of the femur, in people sixty years old and over, bony union occurred in eighteen; two cases failed to unite, which resulted in complete absorption of the neck. In spite of this fact one case has a good functional result, with a moderate degree of limp, no pain; has one inch elevation of the heel and walks without a cane; the other case has some pain, is necessary to walk with one crutch and one cane, she stays in a wheel chair most of the time, is now seventy-eight years of age, has had previously a hemoplegia, which occurred before the fracture, the case was referred by Dr. E. Y. Johnson, deceased. At the time of accident, patient's blood pressure was two hundred eighty over two hundred. Non-union may have been a blessing in disguise because it has caused enforced rest, which has been of great benefit to arteriosclerosis. Patient is now in Florida and goes to Atlantic City every summer. We have had five deaths occur in the last two hundred fractures; two of these deaths were caused by embolus, one pneumonia, one gas bacillus infection from a compound comminuted fracture of the thigh, and one from shock. Patient had multiple fractures of the pelvis, hip and spine and lived only forty-eight hours after the accident.

### DISCUSSION

**J. Garland Sherrill:** Dr. Owen's patients are to be congratulated upon the excellent results he has obtained, and upon the good judgment he has shown in the method of treatment selected in individual cases. Also, he has emphatically demonstrated that careful treatment carried out after the fracture has been put up and progressed to union is almost, if not quite, as important as the primary treatment. In so many of these cases the after treatment is neglected and the end results are not as good as they might have been had the patient been kept under observation and proper treatment carried out.

There is one suggestion to make in connection with the treatment of fractures; namely, that in many cases reduction of the fracture can be accomplished by careful relaxation under anesthesia with flexion of the joints placing the bones into position and locking them there, thus doing away with the necessity for traction.

In the treatment of fractures, one point of great importance is the question of blood supply to the injured part, because if we destroy or seriously impair the circulation and the patient subsequently loses an arm or a leg, we are almost certain to have a damage suit on our hands.

I have recently had occasion to compile some data in connection with fractures treated at the various hospitals in this city and in the limited time at my disposal I have been able to collect records of 2,190 cases, and I have been impressed, not only by the low mortality in these cases, but by the various forms of anaesthesia employed and the different methods of treatment used. In only a few cases was the open treatment used, most of them having been treated by the various closed methods. Dr. Owen cites five deaths in two hundred cases, which, considering the fact that this number embraces all kinds of fractures, including those of the neck of the femur where the patients were confined to bed for several weeks, is an extremely low mortality.

We found it a very arduous undertaking to compile a record of cases of fracture treated at the various local hospitals during the past several years, and it is our hope in the near future to develop and have the hospitals adopt a uniform method of keeping the histories of such cases so that they may be easily available.

**Guy P. Grigsby:** I wish to compliment Dr. Owen upon the results he has obtained as shown by the pictures exhibited here tonight.

I believe that skeleton traction is something that constitutes a very marked advance in the treatment of fractures, particularly those of the femur, for two reasons; first, because practically all of these cases can be reduced by this long continued traction, and; second, while it requires an operative procedure, it is one of comparatively minor importance, is removed from the site of the fracture and is, therefore, seldom if ever attended by infection if ordinary aseptic precautions are observed.

Like Dr. Owen, I was formerly a pupil of Dr. Whitman, and I agree with the essayist that the use of plaster casts by the Whitman method can be employed in nearly all types of cases of fracture of neck of femur with satisfactory results. As Dr. Owen has pointed out, if the cast is properly applied, these patients can be gotten out of bed very promptly. In those comparatively few cases in which the individual's resistance is so low that we feel that confinement to bed for even a period of ten days or two weeks might seriously affect the patient's chance of recovery, the key method mentioned by Dr. Owen can be used, often with very gratifying results. This is illustrated by the case I recently saw a man 75 years of age, who suffered a fracture of the right humerus and comminuted fracture of the right hip. In this case the key method was used and we were able to turn the patient over in bed immediately following operation, and within 6 or 7 days he was sitting up in a wheel chair, perfectly comfortable. I would not advocate this method except in cases such as the one described, where confinement to bed for a period of ten days or two weeks would militate against his chances for ultimate recovery. I believe in most of these cases the application of a plaster cast after the Whitman method is the method of choice.

In fractures of the patella and olecranon with separation, there is almost invariably a tearing of the capsule and of the ligaments around the bone, and such cases should unquestionably be subjected to operation as early as possible. Dr. Owen recently saw with me a fracture of the olecranon, in which we performed the usual operation of boring holes through both fragments and fastening them with chromic catgut, and while we did not get union of the bone, we secured perfect union of the capsule and soft structures around the olecranon, with a splendid functional result. There is no limitation of motion and for the past six months the patient has been carrying on in his usual occupation of climbing telephone poles, with no pain and no apparent loss of power.

**Morris Flexner:** Dr. Owen has shown us a most interesting group of cases and I certainly wish to congratulate him upon the excellent results he has obtained.

Just one question: Some years ago a number of cases were reported in the literature on this subject, in which calcium and thyroid extract had been given in cases of un-united fractures in old people, in whom the calcium content of the blood appeared to be low, and I would like to know whether this form of treatment has been demonstrated to be of any marked value in these cases.

**Louis Frank:** It has been with gratification and pleasure that I have listened to Dr. Owen's most interesting report. It must be remembered that, in all probability, most of the cases shown here tonight had, before coming under Dr. Owen's observation, been treated elsewhere without success, being brought to Dr. Owen as a last resort, and this fact makes the magnificent results obtained, as shown by the pictures, all the more impressive. It shows what can be done for old, badly united, or un-united fractures when treated scientifically, especially if one be not wedded to one particular type or method of treatment. Perhaps most of us at times make the mistake of favoring too much the "children of our own creation" as it were, and applying a given method of treatment to all cases when, as a matter of common sense the treatment should be adapted to the patient and not the patient to the treatment.

Another point in Dr. Owen's report that impresses me is the fact that it is not absolutely necessary to get a perfect anatomical result in order to secure a satisfactory functional result, and this is something that we should not lose sight of in these cases.

I am also glad to see so beautifully demonstrated here tonight something that I have believed from my student days; namely, that in fractures of the long bones all deformity can be over come by means of extension properly applied for a sufficient length of time.

I wish to thank Dr. Owen for his magnificent report and to express my pleasure in having heard it.

**S. G. Dabney:** I wish to congratulate Dr. Owen upon the use he has made of the gifts with which Nature has endowed him. Surgeons of his type, like poets, are born and not made, and I think the profession is to be congratulated upon the advent of a worthy successor to Dr. Vance.

**Robert L. Woodard:** I wish to express my appreciation of the privilege of being here tonight. I was present in most of the cases shown and I would add that in all of our massive autogenous onlay grafts, functional results obtained were one hundred per cent perfect. We had some osteo-periosteal grafts in which this was not true but all of the onlays were perfect.

I would like to ask Dr. Grigsby if, in his case, he used an external support after putting in the key, or whether he depended entirely on the key to hold it? It seems to me that if the key were made sufficiently tight to mechanically hold the fragments in position the physiological process would be destroyed; in other words, there would be nothing to supply the bone except the periosteum and the underlying bone cells.

**L. Wallace Frank:** I wish to congratulate Dr. Owen upon the magnificent results he has shown here tonight and to add only one thought to the discussion. I believe that, in handling fractures, the individual who first sees the patient should recognize his own limitations and send them to some one who is competent and adequately equipped to deal with them properly primarily. Unquestionably, in many of the difficult cases shown by Dr. Owen, proper handling of the condition in the beginning would have obviated the necessity for the difficult operations that were indicated by the time the patient came under Dr. Owen's observation.

**W. Barnett Owen,** (in closing): I am very grateful to the members of the Society for the reception they have accorded my paper and particularly to Dr. Dabney, although I feel that his very kind remarks are not really deserved. No one, of course, could take the place of Dr. Vance, but it is a very high compliment indeed to be considered as even approaching the character of work that he accomplished.

There is so much that we can say about fractures. Each case is largely a law unto itself and there are many things that enter into the selection of the method of treatment to be employed, such as age, environment, occupation, etc. The method for any particular individual to use is the one with which he is most familiar and which will accomplish the best results in his hands. Another man might get excellent results from a method which in my hands would be a complete failure, and vice versa.

I believe there are really very few instances of true non-union in fractures. Many times we are in too big a hurry. I have long ago learned that fractures in adults do not unite solidly in eight weeks, and in old persons if a fracture of the neck of the femur unites satisfactorily in six months they should consider themselves very fortunate. In such cases if we can obtain bony union in 66 2-3 per cent of cases, we can feel that the method employed has been entirely satisfactory. We must bear in mind that in fracture of the neck of the femur the nutrient artery is torn in two and the blood supply very greatly diminished. The x-ray picture, ordinarily taken in the antero-posterior position does not always reveal the true situation. It may show what appears to be a fracture with the fragments end to end when, as a matter of fact, they may be overlapping. The distal fragment of the fracture is usually found posteriorly.

It was during my service at the R. & C. Hospital in 1905 that Dr. Whitman first published a description of his method, which has been employed by many men for more than a quarter of a century. It has certainly stood the test of time and has probably produced better results in more cases than any other one method.

I am not entirely satisfied with the methods of treating fracture of the neck of the femur in old persons. Such an injury is a serious matter and there will always be a certain percentage of mortality regardless of the methods of treatment that we may employ. Smith-Peterson, of Boston, has been using and enthusing over a four-pronged nail in this type of case. He does a very extensive open operation, exposing the fracture, re-opposes the fragments perfectly, and then drills a hole from below upward through the neck and into the head of the femur; then places this four-pronged steel nail in position and leaves it there until union has taken place. Then he removes the foreign body. He was able to obtain, post-mortem, a very good specimen of the result obtained from this procedure from a patient who had been treated in this manner and later died from some other cause. The nail was found to be still in position and the fracture of the neck had healed with perfect bone union.

It does not make any material difference what procedure we adopt; the main thing is to accomplish the desired result, and the method which appears to offer the safest and best chance of achieving this end from the standpoint of the patient, with the least trouble and greatest satisfaction to the surgeon, is the one of choice.

Dr. Flexner and Dr. Dowden asked about the use of calcium. There is hardly any question that, in certain cases, it is of considerable benefit. In my hands, however, the use of cod liver oil gives even better results; it is a good bone producer and a general reconstructant and is, therefore, a valuable aid in these cases.

It is pretty generally accepted now that syphilis plays very litle part in retarding bony union, but I cannot help but recall that, during my City Hospital experience, we saw a great many cases of delayed union which persisted until after salvarsan had been given to the point where the patient showed a negative Wassermann reaction. I recall one case in particular of a girl who had sustained a compound comminuted fracture of the ankle which, at the end of three months, showed no signs of union. Despite the fact that she showed a negative Wassermann, we gave her salvarsan and a little later obtained a 4-plus Wassermann, and union took place very promptly after beginning the use of salvarsan. Salvarsan does no harm. Even if the patient be not syphilitic it acts as a tonic and reconstructant and, in my opinion, should be employed in special cases. Hyperemia promotes a better blood supply to the injured part and union takes place more promptly.

As early as possible in these cases heat and massage should be employed. Particularly is this true in Colle's fracture and especially in elderly people where the splints have been left on so long that the part has become more or less rigid and useless. In such cases motion and massage should be instituted as early as possible.

## MENINGOCOCCIC MENINGITIS TREATED WITH THROUGH-AND-THROUGH DRAINAGE—REPORT OF CASE*

JAS. W. BRUCE, M. D.
Louisville.

Patient, a male child four years old, was seen in consultation with the family doctor with a diagnosis of epidemic meningitis. A spinal puncture was made and we succeeded in demonstrating the meningococcus. Patient was given intraspinal treatment by the lumbar route on Monday and again on Tuesday morning and Tuesday night, each time taking away as much fluid as we could get and introducing 15 c. c. of anti-meningococcic serum. We also gave him 15 c. c. intravenously. Despite this treatment the patient showed no improvement; in fact, he became worse. On Wednesday morning his temperature was higher, his neck was a great deal more rigid and he was considerably more stuporous.

Dr. Spurling was called in and asked to do a trephine operation which was carried out. We then inserted a brain needle into the ventricle and drained off as much fluid as we could get. At the same time a lumbar puncture needle was introduced. Then Dr. Spurling allowed 30 c. c. of serum to flow slowly into the ventricle, and just as the last few drops disappeared into the ventricle, the fluid discharged by the lumbar puncture needle became slightly discolored with the serum, showing that the whole space was filled with it. That was on Wednesday and the patient had a pretty rocky day and night. The next day we again injected 30 c. c. of serum into the ventricle, allowing it to flow out of the puncture in the lumbar region. The next day he was better and we did not repeat the injection of serum but simply made a lumbar puncture and the fluid withdrawn was much more clear. On the following day the fluid was even clearer and from then on the patient's recovery was uneventful.

I report this case because, so far as I know, it is the first time in this city that a case of this kind has been treated by through-and-through drainage, from the ventricle through the lumbar region.

Dr. Lyon, of Huntington, W. Va., in a paper read before the Southern Medical Association reported several cases in which the serum was introduced into the fontanelle and through-and-through drainage carried out, but this is the first one that I know of that has been trephined and the serum introduced into the ventricle. The fact that the child made a remarkable recovery under this method after ordinary treatment had been unsuccessful justifies its employment. It seems to me to be a radical and effective way of getting at this disease and can be employed in patients of any age suffering from meningococcic meningitis.

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*Read before the Medico-Chirurgical Society, Louisville.

## DISCUSSION

**R. Glen Spurling:** The treatment employed in this case was, of course, planned by Dr. Bruce I was simply an accessory, as it were, making a broad hole and administering the serum into the ventricle. This type of treatment is sound in every respect. Many years ago, it was shown that in meningococcic meningitis, the organism was present in the ventricular fluid. In fact, many hold to the belief that the origin of the infection occurs through the choroid plexus of the ventricle. Assuming this to be the case, it is reasonable to administer the serum directly into the primary focus of infection, namely, the ventricle. Furthermore, we know that serum administered into the ventricle reaches all parts of the subarachnoid space. In no other method of administration is it possible to have the serum diffuse into all parts of the infected areas.

About two years ago, Sachs demonstrated conclusively that there is no active circulation of the cerebro-spinal fluid in the spinal subarachnoid space. His work demonstrates beyond doubt that intraspinal administration of serum for the treatment of meningococcic meningitis is a less satisfactory method than placing the serum directly into the ventricle. The only way for the serum to spread to the cranial subarachnoid space when administered intraspinally is by diffusion, and this is an extremely slow process. By Dr. Bruce's method, the serum is encouraged to circulate in the cerebrospinal fluid spaces by withdrawing fluid from the spinal canal after serum has been placed in the ventricle.

During the past 5 years, we have on numerous occasions treated meningococcic meningitis by injecting fluid into the ventricle. While this method has advantages over all other methods of local treatment, yet it is inferior to the one advocated by Dr. Bruce where circulation of the serum is started by withdrawal of lumbar fluid at the time of the ventricular injection.

**J. Garland Sherrill:** This is certainly a very interesting report and I must say that the method employed by Dr. Bruce sounds rational to me. As has been pointed out there is no circulation in the spinal cord and it would appear to be logical to create a circulation by making lumbar puncture at the time the serum is introduced into the ventricle and if the serum is at all efficient it will thus certainly reach the points where it will do the most good. The "proof of the pudding is in the eating," and the result obtained in Dr. Bruce's case would make it appear to be a most valuable method of treating meningococcic meningitis.

**John W. Price:** I am very glad to have heard this report. The method employed by Dr. Bruce is new and I believe it is one that is going to prove to be very helpful in these cases. Of course, one swallow does not make a summer and we cannot tell just what the results from this method will be after it has been tried in a hundred or more cases, but it appears to be such a logical procedure that it is a wonder it has not been put to use a long time ago.

**John Walker Moore:** Dr. Coleman of Philadelphia, recommends the introduction of the serum into the carotid artery and it seems to me this might be of additional value in dealing with some of these cases where there is a blocking of the spinal canal and the resultant possibility that serum injected into the lateral ventricle or sterno magnum might not reach certain of the infected areas. In such cases injection of the serum into the carotid artery might be worthy of consideration.

**J. W. Bruce,** (in closing): Regarding blocking of the spinal canal, it seems to me that one of the chief values of the method of treatment outlined here tonight is that, if used early enough, it tends to head off blocking. During the process of giving this treatment, one can tell whether blocking has already occurred. If so, the patient is probably going to die anyhow, but in the early stages, before blocking has occurred, introduction of the serum may serve to wash the particles of pus through and open up the channels, thus making blocking very much less apt to occur.

One question that occurred to me in connection with this case was whether it would be well to first irrigate the spinal canal with saline solution and then follow it by the injection of serum. Dr. Spurling, however, believed that saline would be very irritating; therefore, it was not done.

The only difference between the treatment employed in this case and that used by Dr. Lyon was that the latter used about 100 c. c. of serum, introducing it into the fontanelle and draining it out through an opening in the lumbar region. The use of this amount of serum certainly increased the expense a great deal and whether it was of any additional advantage I do not know.

This method is so logical that I can hardly see why we should treat a case of meningococcic meningitis in any other manner. This disease may kill the patient so quickly that I am inclined to wonder whether it is wise to wait until after intraspinous treatment has failed before trying this method; we might not get a second chance. I recall one case that died within thirty-six hours after the onset of the disease, and in such a case if we defer trying this method until after we have used intraspinous treatment without result, we will have waited too long.

# HYDROPHOBIA, A CASE REPORT*

D. S. Robertson, M. D

Symsonia.

Before entering upon the report of this case, I shall endeavor to discuss the subject briefly, hoping thereby to add some points that will make the case report of further interest.

By hydrophobia is meant an acute infectious disease of animals occasionally communicated to man, characterized by excitement, hyperaesthesia, deglutitionary spasm, and paralytic weakness, when not specifically treated ending in death, and undoubtedly caused by a specific bacterial poison.

The period of incubation varies widely in different cases. It is shorter in children than in adults and in wounds about the face, head, hands, or uncovered parts than in case of injuries received in other parts of the body through the clothing. The severity and character of the wound also influences the time of the onset, the symptoms appearing sooner in cases of infection from punctured and lacerated wounds.

The usual incubation period is four to eight weeks. but it may be, in occasional instances, six or even twelve months or more. The wound through which infection takes place has usually healed entirely before any symptom of rabies is apparent, but in some cases when the disease appears the wound becomes irritated and again inflamed.

The early symptoms of man are general nervousness, with irritability, wakefulness, and depression of spirits. There is often headache and a vague uneasiness, sometimes slight fever and rapid pulse, and the wound may become painful and the surrounding tissues show perversion of sensation, with some anaesthesia. Some slight stiffness about the muscles of the throat is noted, the voice becomes husky, and swallowing becomes difficult. Soon great nervousness and excitement appear with abnormal reaction to external impressions of all kinds, and at the height of the attack severe reflex spasms appear. These spasms are quite distressing, and involve particularly the muscles of the throat. Attempts at swallowing or taking water tend to bring on violent and painful spasmodic attacks, which cause the patient to dread even the sight of water: Whence the name of the disease, Hydrophobia.

There is often at this stage some mental disturbance, greatest at the time of the spasm, and oftentimes a copious amount of saliva, which, owing to the difficulty in swallowing, is allowed to run from the mouth.

The acute spasmodic stage usually lasts for a few days, and is then succeeded by a paralytic stage, in which the patient lies quiet, nearly helpless, confused and finally unconscious. The heart action becomes more feeble, the respiration shallow, decreasing till death ensues.

At this point of my discussion let me mention the fact that there is known to be a so-called pseudo-rabies or lyssaphobia: (a morbid fear of hydrophobia) leading, by the influence of auto suggestion, to a group of nervous and hysterical manifestations closely resembling the true hydrophobia. A neurotic person of nervous instability may be bitten by a dog, supposedly mad, and after a certain length of time of brooding over the possibility of an attack of the disease may show some symptoms paralleling these rabies. The person may become restless, despondent, excited and may exhibit some form of spasms. The persons exaggerate the danger which they consider themselves to be in and may show signs of other varied hysterical phenomena. The case does not progress, however, and in a short time these imaginary attacks subside. The person does not have any rise of temperature, no weakness, no prostration, and no disturbance of general health or bodily functions. Probably no case of this so-called pseudal affection has ever proved fatal.

Only a short time ago (the 28th of August to be exact) I was called to attend some patients who had hydrophobia. There had been four of a family of eight, bitten by their own dog, in the month of May, or about ninety days before the onset of their attacks. The father, Noah Myre, aged forty-four years, his daughter, Lorain, aged fifteen and two other smaller children were the members of the family who were bitten. Lorain began to have her attacks a few days before Mr. Myre did but they never gave her condition any serious consideration, believing it to be due to the fact that it was her period for menstruation, and also because they did not really think their dog had rabies, although other dogs and also some goats which were bitten by this same dog went mad. Two of these dogs that were bitten died at Dr. Robert Fisher's hospital at Paducah and were pronounced by him to have true hydrophobia.

It was not until Mr. Myre had his first attack that they thought it necessary to call for my services. He had gone to the well to get a bucket of water when his first spasm came on. Mrs. Mrye said he called for her to bring his razor so he could cut out the place where the dog bit him and when she heard him say that, she knew that something was wrong so she ran to him. He was pale and in a nervous jerk all-over. She couldn't manage him and he ran to the corn patch, near by and fell against the fence, laying there for several minutes in a semi-conscious state with his eyes set, and froth ensuing from his mouth. Still after this he as not alarmed about his condition and it was two days before I was called to their home. Upon examining them and being informed of the nature of their spells I was immediately convinced that it was hydrophobia and with out any further delay I procured a 14-dose course of Pasteur rabies vaccine for the four of them that were bitten, and began the treatments. Right here it may be well to state that the two younger children who had not begun to have attacks before the vaccine was given, have not until yet shown any symptoms and I feel sure that they are perfectly safe from the disease.

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*Read before tht Southwestern Medical Society at Fulton, October 20, 1932.

Probably it will be well to take up the two cases separately as the two (Mr. Myre and Loraim) were of a different disposition. Loraim gave up and went to bed. Her spells at first would come in the night and would be more like a hard chill, these appearing at regular hours, usually at midnight. Then after about a week they began to come in the mornings and then at different times of the day. They gradually became more severe, lasting from one hour to an hour and a half. She would complain of getting cold and begin to pull the bed clothes over her head, then the convulsion would strike her. She would shake so hard that the house would actually vibrate. Her eyes would be glassy and set in a ghastly stare, her lips and finger nails, blue, and her flesh would be of a deathly pallor. She refused to take food or water and it was for a long time that she did not receive any nourishment whatsoever. I finally got her to taking a little crushed ice and then after a few doses of her second treatment of vaccine she began to eat a little food, mainly eggs and fruits. She would lie for hours as if she were asleep and would never say anything unless she was spoken to. She had a temperature of 101 to 101½ most of the time. I had to give her medicine at all times to keep her bowels acting and her kidneys functioning properly. Her spells were the most severe at about the conclusion of the first course of vaccine but after beginning the second course she began to show improvement. Her spasms were lighter and gradually got further apart until finally she ceased to have them at all. She was in bed five weeks. Upon several occasions when her spasm would be so hard she would try to bite those who were near her and the froth would have to be wiped from her mouth and nose.

She is up now and able to go about some but she surely shows that she has been a very sick person. I have her on a blood building tonic and am insisting that she eat foods that are highly nutritious.

Mr. Myre was different to his daughter because he had the knowledge that he must take water and food to keep his body in the best physical condition possible, in order to help the vaccine to do its best. He took his food regularly although he had to substitute crushed ice for water, because the sight of water would threaten to cause a spasm to come on him. He had his first spasm on the 27th of August and then it was five days before his second one occurred. Then they began to come regularly, always in the day time. He could tell when one of the attacks was coming and he would run to the door to get air. He would smother, choke, and froth at the mouth. He would ask for every one to stay away from him as he was afraid that he would hurt them, although he never did try to bite, as the girl did, he would shake for an hour or more and then when the spasm would subside he would be prostrated. During the time when he wasn t having a spasm he would usually be fairly normal but rather inclined to be "Pickyfied" or in other words, resembling a person about half intoxicated. If he was told any thing the least bit funny he would laugh in a rather hysterical way. He was always very restless and could not sleep much. He lost weight rapidly and was in a very weak condition, scarcely able to be up, still he wouldn't give up and go to bed. The place on his arm where he was bitten became inflamed, showing up worse when the attacks would come on, and at one time there was pus in the place, and his arm would pain him severely. He said that he could feel that the vaccine stimulated him and that when it began to die out in him he could feel that another spasm was coming on. He felt that the effects of the vaccine would last for about twenty-four hours. But here let me say that I do not know whether it was really that the vaccine stimulated him or that he just imagined that when he begun to feel more weak and nervous that it was the medicine dying out, instead of being able to realize that it was the on-coming of the spasm that would make him feel so weak.

After beginning on the second course of treatments he began to improve and about the time of the completion of the treatments he ceased to have his attacks. He is now able to be out and is taking on small duties around the home, although he is still very weak and nervous. I am giving him the same tonic that I am to the girl, and he is eating heartily.

It is my opinion that the Pasteur treatments have completely cured them of this disease, notwithstanding the fact that there has never been but a very few cases on record where the patients have survived after the attacks begun notwithstanding the fact that the people who put out the Pasteur treatments do not claim that their medicine will be of any benefit after the symptoms of the disease shows up.

I used this medicine on the two who had begun to have the spasms more because I hated to give it to the other two children and not do something for the affected ones. It looked just too hard to stand by and see them facing death, in that awful way, and not make some effort to save them, or at least ease their minds by having them think that there was a possibility of their recovery. I never told them that I didn't have hopes for them, but there were days and days that I thought sure that death was inevitable. But now I am proud indeed that I went ahead and treated them and from now on if I ever have another case of hydrophobia to confront me I intend to use the Pasteur treatments, also I mean to use the same method and medicine that I used to stimulate their bodily functions.

There has been some doubt about this being true hydrophobia due to the fact that a representative of the State Department came down and made a visit to this family after their spasms had subsided, for several days, and not being able to find any of the symptoms present at that time he went back to Louisville and wrote to one of our local doctors and said that he found them suffering with Hydrophobia in a hysterical form, or as I described it heretofore Pseudo rabies or Lyssaphobia.

I can't agree with him and I am sure that if he had have been with me and had gone through with what I did with those patients and had seen them have their convulsions, like I did, he would be of a different opinion. It couldn't possibly have been that it was imaginary, as he termed it, for they were not uneasy at all and had even had some attacks before they thought that it might be caused from the dog's bite, and too, they were not well enough informed on the nature of Hydrophobia to know how to draw on their imagination for the symptoms.

As a conclusion I want to say that I think these folks, with the proper care and treatment will survive this terrible malady, although it will probably be some time yet before they are their normal selves as their bodies are in a very bad run-down condition.

**Acute Otitis Media and Its Complications.**—Costen states that the red drum without tympanic fluid or bulge is the one that responds to general measures. The bulging drum with tympanic fluid under pressure has the best chance of recovery without incident if incised early under careful aseptic precautions. Frequent irrigation with sterile physiologic solution of sodium chloride is a good localizing and therapeutic agent and can be handled at home, where most ear infection are treated. Simple mastoidectomy is without shock and is promptly to be advised if otitic sepsis is progressive.

# SOME PROBLEMS IN PEDIATRICS*

James H. Pritchett, M. D.,

Louisville.

A few days ago I sat in my car parked in front of a school waiting for my little daughter. The comfortable seat, the warm mellow sunshine and the distant drowsy hum of childish voices cast a spell over me and I fell into a reverie. The past arose before me like a dream. Again I was a kid in school, resting my stone-bruised heel on the cross-brace of my desk trying, to no avail after reading it over several times, to remember what Cornwallis did. I was drowsy and my stomach loudly called for food. Noon came at last and after the inner man had been quickly satisfied, a ball game was started. But we soon stopped, for Bill, a little red headed, freckled faced boy, a natural leader, said he was sick. He sat down on the ground, his back against a great Elm tree, while tears filled his eyes. He was pale and trembling. He went home that noon and he never came back. Bill died two days later. He had membranous croup, so the doctor said. The little town was considerably upset, there was some talk of closing the school, there was much burning of sulphur in the various homes. At this juncture my musing was rudely disturbed by some two or three hundred vigorous young scamps as they came tearing down the school steps into the street eager to get home. I have thought of Bill several times recently and remarked to myself that had the doctor in those days known what we now know, very likely the red headed lad would have been saved.

We are accustomed to think of diphtheria; the major pestilence of the 19th century, as having been conquered for all races and for all time. The decline of the disease in prevalence and mortality has given us a sense of security. It is a matter of pride and record that diphtheria both as to the number of cases and mortality has been remarkably reduced the past ten or twelve years. This, of course, has been accomplished through extensive prophylaxis and early treatment when the disease arose. We may have, for the time being, lost sight of the fact that diphtheria, like all communicable diseases, moves in cycles and may fluctuate both as to the virulency and in the susceptibility of the human host. Friedberger is of the opinion that too much stress has been placed on the possible relation of cause and effect between the introduction of diphtheria antitoxin and the disease. Diphtheria was, he continues, in the descending phase of a natural wave when antitoxin became a routine therapeutic measure. Likewise, the toxin-antitoxin was widely used when diphtheria was receding over a period of high epidemicity. The question that arises *is,* are we safe in assuming that active immunization as practiced in the past offers sufficient protection in the future? I answer in the negative. This is one of our problems. Some two years ago Godfrey called attention to the fact that with a possible rare exception without some positive influence, any decline in diphtheria will be followed by a rise approaching or even exceeding the former level. Such a statement seemed purely theoretical and almost absurd, but sad to relate, his prophesy has come to pass. In Australia, England and France diphtheria has reasserted its ancient mortality. In many cases early administration of the usual serum was ineffective—infants were especially vulnerable. Last year Leeds, England, experienced a severe epidemic, the death rate rose from 5 per one-hundred thousand to more than an average of 18 by June, 1931. In 104 consecutive cases, Anderson and his co-workers found 63 severe cases in which pharyngeal cultures showed diphtheria bacilli atypical as to morphology, cultural characteristics and biochemical properties. In 35 milder cases the usual type was found. To the severe strain of bacteria they proposed the terminology, Bacillis Diphtheria Gravis. We must not lose sight of the fact that what happened in these foreign countries could well happen here. Numerous reports of malignant diphtheria (not of the epidemic form) have been reported in various parts of America. Admitting at least for the present that we have nothing new in the line of diphtheria antitoxin except the suggestion of early administration of large doses of some standard preparation, let us turn to the phase of prevention of diphtheria as our greatest hope in stamping out this dreaded disease. We need a more effective method of protection, one which will render the greatest number of infants and children immune quickly, and such immunity be permanent. The popular method of the past few years has been the injection of toxin-antitoxin (horse serum) in 1 c. c. doses at weekly intervals for three such injections, followed in 60 to 90 days by a Schick test. This method has undoubtedly saved many children from death by diphtheria, but we firmly believe that the percentage of protected is too low. For this reason another method has been suggested or rather another preparation called ana-toxin, but better still, the term diphtheria toxoid. This was developed by Ramon of France. He was able by starting with a highly potent toxin to reduce its toxicity by the addition of formalin and then stored at 37 c. for 3 to 6 weeks, or until it becomes practically non-toxic. To obtain the greatest protection we must start active immunization in late infancy. Those under 9 months show marked protection passive in character. This is lost between the 10th and 12th months; as an average they respond best at 12 to 18 months. *It is safe to say that immunization of one child at or before two years is equal in its effect on the mortality rate to two children of school age. Let it be repeated*: to obtain a high degree of immunization in a given community, we must *start with the infant.* In the very young, the primary Schick test is omitted. In fact I use this test only as a measure to determine whether or not immunity is conferred. Park and Schroeder (Am. J. Pub. Health, 1932) state that diphtheria toxoid is undoubtedly the best for young children because it is the most potent and stable agent we possess. So far, (W. L. Harrison, Surgeon, U. S. P. H.) no known physiological or chemical treatment yet applied has succeeded in restoring any degree of toxicity, the only objection in the way of universal use of the toxoid is the tendency to local reactions and rarely a general one. This of course in older children. Such reactions are allergic and only unpleasant and not dangerous. Older children and young adults such as students and nurses can be tested for hyper susceptibility to toxoid by the use of .1cc. 1-20 diluted toxoid; those showing reactions within three days may be immunized by the gradual method, that is to say, three or four doses administered, beginning with 1/4 c. c. and gradually increased at 7 to 10 day intervals until 2cc. total is administered. Be sure that a Schick test is done on every case 60 to 90 days later and in the very few who give a positive reaction one more cc. toxoid should be used. Later another Schick test should be made. The Schick test while a simple one, is very important and should be properly done.

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*Read before the Nelson County Medical Society.

To briefly summarize, our problems are three in number: 1st, Early recognition of diphtheria and administration of antitoxin in large doses, and if in doubt as to diagnosis, give the antitoxin.

2nd, Educational, in that we must see that children one year of age are immunized.

3rd, To obtain and use a biological preparation that will give the quickest and most effective immunization.

The use of diphtheria toxoid offers the following advantages over toxin-antitoxin:

1st, 20 to 30% more effective.

2nd, Contains no horse serum or animal protein likely to sensitize to later therapeutic serum injection.

3rd, Usually no local reactions, rarer still a general one, especially is this true in infancy and young children.

4th, Contains no free toxin, more stable, retains its effectiveness for a longer time and is not affected by freezing.

5th, Easy to administer in 1cc. doses from two to four week intervals.

We mention briefly the problem of the diphtheria carrier. He is a menace and so far no effective measures have been obtained to render him harmless. It has been recommended that such people be frequently examined and that they receive the toxoid in the hope that this will render them non-virulent.

## COMMUNITY HEALTH*

Harry Linden, A. B., M. D.

Harlan

This meeting, attended as it is by our distinguished guests from Louisville, a distinguished representation of our Harlan citizenship, and by the usual attendance of the Medical Society, presents a very unusual opportunity to discuss those things which we have in common relating to community health. Sir William Osler had been vaccinated against small pox several times without a so-called "take," which might lead one to believe that he was immune from smallpox. In the course of his participation in the fight against a severe epidemic of smallpox in Montreal, he, however, was taken with a mild attack of the disease, having, as it is told, sixteen pustules, two of them being on his face, which he assured his friends, was very lucky, as merely these two on his face could not rob him of his good looks. The medical profession is supposed to be very immune or at least have a very strong resistance against mercenary motives and commercialism. Now and then, however, we see it come down with a light attack of this affection, although, the motive is quite altruistic. Let us consult our program:

"Community health, the cheapest purchasable necessary." "Healthy children as a source of wealth." "Health education, an economic need." There will be noted that with every scientific or medical term used there is an accompanying dollar and cents mark which is to say, "Don't be sick so that you can enjoy the sunshine, sea, woods, flowers, and have a pleasant taste in your mouth, a clear head, a wholesome outlook, a cheerful disposition, good digestion and appetite, but because it is economically unsound." Despite, however, the economic emphasis of this program and the public notice of it in the press, there is a conspicuous dirth, nay, almost a total absence not only of Scotch or Jewish merchants who have come here this Saturday evening to receive the message on health, community or otherwise, but of merchants or mechanics of any other extraction.

Cancer is outstandingly a disease of civilization. Bankers, doctors, ministers, statesmen, engineers, and busy farmers, swallowing hot soup and half chewed steaks and rushing themselves to death, the irony of it being that amongst these are the most economically sound people in the world.

I think it was Hugh Young that once wrote an article for a lay journal on the subject of cancer and submitted the manuscript to H. L. Mencken in order to find out if the language was simple enough for the laity to understand. H. L., after reviewing the manuscript, wrote to Dr. Young, complimenting him and telling him that the language was so very simple, indeed, that anyone not able to understand it deserved to die of cancer.

The medical profession has tried very hard by various means to teach the laicty the important significance of causation and prevention of disease in relation to the treatment and cure, yet many people do not yet believe in vaccination which is offered to them free of charge, but which they refuse and the state is forced to treat people for diseases which could have been avoided by vaccination.

In an article on penile cancer by Walbarst in the Lancet of January, 1932, it is pointed out that 205 American Hospitals and six individual observers reporting 1103 cases of penile cancer, have not observed a single case in a circumcised Jew. In India and Java, 33 cases of penile cancer were reported in (circumcised) Mohammedans as against 1381 uncircumcised men living in the same communities. The morbidity rate of this form of cancer in the U. S. is at least 2% and possibly 3% of all cancer in the male. It is about 15% in the Far East. It is pointed out that there is no racial immunity against penile cancer in Jews and Mohammedans, the immunity being provided by the practice of circumcism in early life. It's a question of choice between shortening the foreskin or shortening life.

Servitus was burned at the stake because he tried to learn something about the physical illnesses of man. I have been told that a doctor in these parts has lost his reputation because a pathological specimen was found in his possession and that another doctor had to leave town because he asked for a razor to shave the patient before delivery. I heard of another doctor being shot because the father of the patient overheard him say that his baby was dying of starvation.

This is a good time to emphasize the importance of post-mortem examinations as of the first importance in prevention of diseases. The doctor should request it, the laiety should gladly grant it. Just as in his spiritual remains the usefulness of man ends not in death, so it is with the body. A post-mortem examination is as necessary and important for the study of disease as is a physical examination of the living.

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*Delivered before the Public Meeting of the Harlan County Medical Society, August 27, 1932.

I wish there were many more people here to benefit by the very important suggestions made by Doctor Veech regarding prenatel care and infant and adult feeding, particularly by her references and comments about grease in the preparation of food. America and Greece (grease) are inseparable allies.

As to quackery and patent medicine, so very ably emphasized by Doctor McCormack in general and by Mr. Kelly statistically, quackery and patent medicine find fertile soil everywhere. Listerine is reported by the American Medical Association to be no more antiseptic than water in the dilutions in which it is ordinarily used and when used in full strength has been found to be a very poor antiseptic. In the last issue of the J. A. M. A. is an exposure of Croxton Cream, sold for ten dollars the three ounces, containing ingredients worth ten cents, and guaranteed as an absolute hair remover. Koremlu cream, its precursor, which has been ordered off of the market, sold for the same price, guaranteed to do the same work, poisoned some people, and when its manufacturers, who had guaranteed to return the money, if from $20 to $240 worth of the cream did not give satisfaction, were declared insolvent and illegal, it was found its liabilities amounted to two and one-half million dollars and its assets to $3.00. Try to collect, says the Journal.

Let me read to you an advertisement of a Lexington Chiropractor and then tell you its source. This advertisement, as you see, has on it a splotch representing the human anatomy with arrows protruding from unknown levels of what is supposed to represent the vertebral column. The advertisement says, "Read this," and my former secretary who sent me this advertisement adds, "And weep." To quote what is printed opposite arrow No. 1: "Slight subluxations at this point will cause so-called headaches, eye diseases, deafness, epilepsy, vertigo, insomnia, wry neck, facial paralysis, locomotor ataxia, ets,"; opposite arrow No. 2, to quote again: "A slight subluxation of the vertebra in this part of the spine is the cause of so-called throat trouble, neuralgia pain in the shoulders and arms, goitre, nervous prostration, la grippe, dizziness, bleeding from nose, disorder of gums, catarrh, etc.;" "the arrow head marked No. 3," says this gem "locates the part of the spine wherein subluxations will cause so-called bronchitis, felons, pain between the shoulder blades, rheumatism of the arms and shoulders, hay fever, writers cramp, etc." Arrow No. 4: "A vertebral subluxation at this point causes so-called nervousness, heart disease, asthma, pneumonia, tuberculosis, difficult breathing, other lung troubles, etc." No. 5: "Stomach and liver troubles, enlargement of the spleen, pleurisy and a score of other troubles, so-called, are caused by subluxations in this part of the spine, sometimes so light as to remain unnoticed by others except the trained Chiropractor." Arrow No. 6: "Here we find the cause of so-called gallstones, dyspepsia of upper bowels, fever, shingles, hiccough, worms, etc." Opposite arrow No. 7, quote: "Brights disease, diabetes, floating kidney, skin disease, boils, eruptions and other diseases, so-called are caused by nerves being pinched in the spinal openings at this joint." Arrow No. 8, "Regulation of such troubles as so-called appendicitis, peritonitis, lumbago, etc., follow Chiropractic adjustments at this point." Arrow 9, to quote: "Why have so-called constipation, rectal troubles, sciatica, etc, when Chiropractic adjustments at this part of the spine will remove the cause." Arrow No. 10 "A slight slippage of one or both innominate bones will likewise produce so-called sciatica, together with many diseases of pelvis and lower extremities." How does this comport with our progress in medicine?

Now, as to the source of this gem of enlightenment. It is not a hand-bill, it is not an advertisement which appeared in a communist paper or yellow journal or any irresponsible publication. It is an ad which was acceptable to a 100% plus American Institution and industry. It is an ad clipped from the Telephone Directory.

In a very interesting book, San Michele, written by Dr. Munthe, the author tells of a period in Paris when the number of foreign physicians in the French Capitol became very alarming, and especially so because it became known that a number of these foreigners were practicing without license. An order was issued by the Paris commissioner that within thirty days every foreign physician would be compelled to submit his certificate or diploma for examination. The author, who was a graduate of a Paris school submitted his. It was approved. Before leaving the commissioner's office the latter asked him if he knew a Doctor so and so a few doors from him. Dr. Munthe replied that he did not know him, but that he thought he must be a very well known and prosperous physician judging from the external appearance of his abode and the wealthy clientelle which visits it. "Well," said the commissioner, "You won't be bothered with him much longer, because he is one of the doctors who we think is practicing without a license." Dr. Munthe in a light vein told the Commissioner that he did not see what a Doctor wanted a diploma for anyhow, because all the patient wants is to get well. The author then tells how he heard the end of this story out of the commissioner's own mouth later. This suspected physician had neglected to report to the commissioner on time, and coming late, asked for a private interview, which the commissioner granted. He then showed the commissioner his diploma which he received from one of the finest universities in Germany from which he was graduated with high honors. The commissioner approved it, but the physician, before leaving, said to him, "Sir, I want to ask you a favor. Keep this information regarding my graduation from this university and my honors to yourself, because my success in your city has largely been due to the fact that, perhaps without exception my patients have all the time thought me to be a quack."

Federal, State and private medicines are impotent if their seed falls on a rocky soil which is an ignorant and uncooperative public.

The public justly mistrusts scientific medicine which yields to or loses itself in the use of commercial standards of evaluation of sickness, be it for its own aggrandizement or as means of interesting the public or individual patient and forgets or shrinks from the motive of pure science as applied in the art of medicine.

Dr. McCormack's name and work I heard of before I came to Kentucky in 1928 and I have been anxious to see and hear him ever since. I enjoyed and benefited much by his address, the fine statistical study by Mr. Kelly, and practical suggestions of Dr. Veech.

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**Peptic Ulcer in Infants.**—According to Selinger, duodenal and gastric ulcers —particularly gastric— in infants under 1 year of age occur much more frequently than is generally supposed, at least in 1.8 per cent of cases. With more necropsies and a closer inspection of the viscera involved, this percentage would undoubtedly be greatly increased. They practically always occur in infants who have some constitutional disease—particularly marasmus. Traumatism and infection are perhaps secondary causes. Except in rare cases, the diagnosis is never made until perforation or persistent and massive hemorrhage occurs. The treatment is early surgical intervention.

## NON-SURGICAL TREATMENT OF LYMPHOID TISSUE OF THROAT*

E. C. YATES, M. D.

Lexington.

It may seem strange to you that having the entire field of otolaryngology from which to choose a subject that I have taken the old subject of treament of lymphoid tissue of the throat. This subject was chosen as the tonsils hold a very strategic position. Not only because these structures are especially prone to local infections, but because they are so frequently associated with general infections and other obscure conditions. Though the internist, in a search for these, utilized a vast amount of surgery with varying results. But removing tonsils being like any other surgical procedure, has its limitations and since 1913, when Regaud Nogier of France, first reported the results of irradiation of tonsils and pharynx, it has been realized that we have a very useful adjunct in combating throat infections in some patients. At the onset the x-ray was used as a general therapeutic agent, which necessarily complicated the issue, but during recent years, through the help of the disinterested pediatricians and internists, the medical profession has returned to a level of sanity.

The question naturally arises: Is tonsillectomy and adenoidectomy successful? It is in a large measure true but there are many cases in which surgery has failed to relieve either the local or general condition. It is for these cases that irradiation of lymphoid tissue is useful.

It will be particularly interesting to give the pathological changes found in the lymphoid tissue of the throat.

1. Hypertrophy, acute, chronic.
2. Atrophy, physiological and result of inflammation.
3. Inflammations, exudative, ulcerative, gangrenous, and suppurative.

I do not wish to give in detail the pathological changes which occur other than mention them. Under inflammations, however, I wish to recall to you that plugs of exudate in the crypts are usually the result and not the cause of infection. It is often referred to as pus in the tonsil. These plugs are made up of fatty debris, masses of bacteria and food which become impacted in the crypts. One must remember that the demonstration of true purulent exudate in tonsillar crypts is almost never seen except in acute infections.

The question of what may be expected from tonsillectomy has recently been investigated by Forsythe of the University of Michigan,

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*Read before the Mason County Medical Society, September 14, 1932.

March, 1928. He found conservatism was becoming more apparent since 72 per cent of the students had their tonsils, while 28 per cent were without them. Those with them intact had less acute upper respiratory infections than those without them and he thought those without them had better general nutrition and health, but on the other hand had more enlarged cervical glands.

Kaiser studied 5000 cases in Rochester who had tonsillectomy done in 1922. He examined 1200 of them two years later. These were re-examined and their health compared with that of same number of children not operated upon:

Operation had given relief in sore throats, acute coryza, and ear infections.

Cervical nodes uninfluenced or became aggravated.

No effect on laryngitis, bronchitis or pulmonary infection.

Arthritis and chorea equally frequent in two groups but heart disease was more frequent in non-operative group.

Lane reported 1000 cases in Johns Hopkins Hospital in whom tonsillectomy was done and stated that 40 per cent were not relieved of sore throats.

Pemberton, Philadelphia, 1923, reported 400 cases in soldiers to show relation of tonsillectomy to articular rheumatism:

60 per cent—preceding history of exposure.

27 per cent—no focus.

33 per cent—dental infection present.

12 per cent—intestinal infection (dysentery present).

3 per cent—frequent sore throats previously.

52 per cent—suspected of chronic tonsillitis.

His results reported were 23 per cent recovered with no demonstrated focus; 46 per cent recovered with known focus. He concluded that arthritis had little correlation with active infection.

Israel Bram, Medical Journal and Record, June, 1927, reports observation of 9864 goitre cases in 15 years. The conclusions drawn suggest the need of an open minded attitude when medical attendant is consulted by a patient suffering with a goitre and diseased tonsils. He concludes that:

1. In simple goitre it is doubtful whether diseased tonsils play a part.

2. Hypertrophy of tonsils without infection are coincident with simple goitre during puberty and adolescence.

3. Diseased tonsils appear to play a minor role in assumption of toxicity by a previously non-toxic goitre. Tonsillectomy may result in amelioration of toxicity, but the goitre itself is unaffected.

4. In exophthalmic goitre diseased tonsils often play a contributory etiological role. Tonsillectomy with expectation of cure is very disappointing. It is supplemental only to a more direct therapeutic measure.

5. He believes, however, that tonsillectomy should be done in all goitre cases.

Farnum, who studied 700 cases in Cardiac Clinic, St. Luke's, states that little or nothing can be expected from standpoint of cardiac cases other than the acute follicular tonsillitis that may be relieved.

These reports give one the impression that conservatism is certainly justified in advising adenoidectomy and tonsillectomy. One's reaction is certainly—Have the tonsils and adenoids been removed thoroughly?

St. Lawrence, in the report of 97 cardiac cases (Jour. A. M. A. October, 1920) reported that 22 per cent of those required at least two operations to remove tonsils completely.

One cannot condemn the operator who leaves tonsil tissue or for the hyperplastic tissue arising in tonsillar fossa or on posterior wall of pharynx. Whatever else may be the function of the lymphoid tissue in Waldyer's ring, their protective role is most important. This is nature's attempt to restore a tissue which is necessary. The questions which arise in my mind are:

Are we too radical in our operative work in throat?

Or were the adenoids and tonsils removed too soon in life?

Frequently we are consulted by patients who have been made more uncomfortable since operation. Their colds and sore throats are more frequent. It is particularly these cases of whom I wish to speak.

During the past two years I have seen 15 of these cases and have advised x-ray therapy of the tissue in their throats. I will give only a brief resume of these cases.

Their ages range between 12 and 79 years.

4. cases—recurrent acute nasopharyngitis with acute suppurative otitis media, one or both ears. Seen 3—6 months, 9 months, and one year respectively with no recurrence.

1 case—recurrent nasopharyngitis with crusting and severe headaches. Relieved for 5½ months.

1 elderly case, 79—catarrhal deafness, "rheumatism." Improved—able to walk—deafness improved.

Campbell Smythe, Boston, December, 1926, Otology, Rhinology and Laryngology, gave treatment for 10 days, 6 treatments, 2 portals right and left side with lead protection. Factor used—8″ spark gap, 5 min.—2 mm. aluminum filter—12″ distance—5—8 minutes. He concludes that treatment of lateral bands of lymphoid tissue is an aid to deafness and tinnitus of short duration. Distinct aid in cases of acute tubal deafness. Most improvement between 8-15 years.

1 case—no improvement after course. Patient developed lympho-sarcoma later.

8 cases—Recurrent attacks of pharyngitis and laryngitis. All but one showed objective and subjective improvement.

Lila Knox (Jour. A. M. A., March, 1930) reports treatment of 259 cases—5 per cent of failures.

In the above small series we have been able to follow them but a relative short time but our experience has been very gratifying. Similar results have been reported by Witherbee, Hickey, Kahn, Barrow and Williams.

Some radiologist utilize this form of treatment in cases of enlarged adenoids and tonsils suffering from acute coryza with difficulty in breathing, particularly in children. Others recommend same in tuberculous cases and in senile cases where age is a contraindication to surgery. The treatments are given at intervals and repeated at weekly intervals with a very low voltage. No deleterious effects have been experienced in our cases. The only complaints are dryness in throats and slight swelling of parotid glands.

In conclusion: This form of treatment is a useful adjunct to our treatment of nose and throat cases but must be handled by a competent radiologist, and I feel that with added experience will reduce a large percentage of those cases which are more or less our chronic cases coming to our offices for their routine throat swabs.

## PRENATAL SYPHILIS*

WINSTON U. RUTLEDGE, M. D.

Louisville.

From the latter years of the 15th Century when the Great Pox first spread its devastating blight over stricken Europe down to the present, the combating of this disease has occupied a large portion of the time and energy of medical men throughout the entire world.

At first the recognition of its various forms and manifestations was of paramount importance, for its attacks were masked by innumerable disguises which many times simulated other diseases. Then came the frantic quest for remedies which would effect its cure, and when this search finally appeared to assume the lineaments of success, a final problem as vital as any of the previous ones presented itself, as Syphilographers everywhere came to realize that the only hope for the ultimate eradication of the Lues Venera lay in education and prophylaxis.

To suppress and eliminate all possible sources of syphilitic infection has been the gigantic task assumed by the Public Health Departments of our State and Federal Governments, but their success depends in large measure upon the intelligent co-operation of the private practitioner, and it is upon the important question of the prenatal treatment of syphilitic mothers for the prevention of infected offspring that I wish to dwell for a few moments.

It is a deplorable but clearly recognized fact that in the great majority of cases, married women are the innocent victims of previously infected husbands, and as Stokes, (1), has stated in his book on syphilis, "The responsibility for syphilis in marriage can be squarely placed upon antimarital sexual exposure of young men and points directly to the treatment and suppression of the prostitute and the education of the young men as the most fundamental form of attack on this problem." Unfortunately the complete suppression of prostitution and the successful education of youth is a Utopian dream not to be realized in the immediate future, and so we must face the fact that in generations to come there will be infected mothers who will give birth to infected babies unless the disease is recognized prior to conception or in early pregnancy and treatment instituted before the spirochete has had the opportunity to intrench itself too firmly in the growing fetus.

Paracelsus, the great physician and alchemist of the 16th century, was perhaps the first one to recognize the transmissability of syphilis from one generation to the next, for in 1529 he stated that syphilis was a hereditary disease and could be transmitted from father to child. So we see that even then the chief censure fell upon the father as the major factor in the initiation of this tragedy, but the more direct role played by the mother is the one with which we are now chiefly concerned.

In all well organized Clinics and Hospitals where such a practice is feasible, a routine blood Wassermann should be taken on all such women as soon as they present themselves, and in addition, a careful history and physical examination made. In those cases in which physical findings or history suggest the possibility of syphilis, the Wassermann should be repeated several times provided the first test is negative. In such cases a provocative Wassermann will sometimes give the correct result.

It is a surprising fact that the early manifestations of syphilis are frequently overlooked in women. In a recent study of fifty syphilitic mothers in the City Hospital, I found that eighty per cent denied all primary and secondary symptoms and had no idea when their infection occurred. Cannon, (2), reported a similar percentage in a study of the mothers of two-hundred and two congenital syphilitics, while Halloran, (3), found that of two-hundred and twenty-five pregnant women with strongly positive blood reactions, one hundred and thirty-four gave histories of abortions without ever having recognized the primary or secondary manifestations.

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*Read before the Nelson County Medical Society, Bardstown, September 28, 1932.

Because of such statistics we must fall back many times on the serologic findings of the blood and spinal fluid in making a diagnosis of the disease. Before the onset of pregnancy, the reliability of our modern serologic tests is rarely doubted, but there are still a few who question the validity of the Wassermann test once pregnancy has commenced. No less an authority than De Lee (4), in his book on obstetrics, states that due to the possibility of false reactions the Wassermann test had only made, "confusion worse confounded," and was therefore valueless in these cases.

Fortunately, however, such beliefs as this are now in the great minority and following the modifications and improvements in our serologic tests, it has become accepted by such authorities as McCord, (5), Gammeltoft, (6), Halloran, (3), Kilduffe, (7), and others, that a strongly positive Wassermann reaction confirmed on one or more occasions, constitute definite proof of the presence of a syphilitic infection. But it must not be forgotten that many syphilitic women may develop a negative Wassermann reaction during the latter months of pregnancy following a minimum amount of treatment or none at all. This observation has likewise been substantiated by careful studies made by many syphilographers.

The question of false positive Wassermann reactions in pregnancy in non-syphilitic women, has been the topic of many heated discussions. That they occasionally do occur as the result of laboratory errors or unexplainable variations in the complimentbinding power of the serum is recognized, but the percentage of these cases is so minute that we feel fully justified in treating all pregnant women on whom repeated strongly positive reactions are obtained.

It has long been accepted by some physicians that since pregnancy seems to act as a partial remedy for syphilis, repeated pregnancies may ultimately effect a complete cure even in the absence of any supplementary medical treatment. Others, like Findley, (8), have stated that adequate anti-syphilitic treatment carried out through one pregnancy is sufficient to insure the birth of healthy offspring in the following pregnancies, but unfortunately for members of the second generation, repeated experiences have proven the disastrous fallacy of such beliefs. At present the opposed opinions of such men as Schamberg and Wright, (9), in this country and Gammeltoft, (6), in Denmark, are coming to be generally accepted. They believe that no time limit for the transmission of syphilis from parent to child can be fixed.

Of one hundred and forty-three replies to a questionnaire sent out by the Venereal Institute at Moscow, (10), on the advisability of anti-syphilitic treatment of pregnant women who had been previously subjected to abortive and seemingly adequate treatment of this disease, more than half were in favor of prophylactic treatment during each pregnancy irrespective of previous treatment or the duration of the negative period. However, a few authorities such as Jadassohn in Germany, Bruno Bloch in Switzerland, and Schamberg in this country, advised treatment only if less than three years had elapsed between the time of the infection and pregnancy. In many replies, cases were cited in which women had been given seemingly curative treatment and remained seronegative for years and then given birth to a syphilitic infant.

In spite of such evidence pointing to the advisability of treating all women known to have had syphilis through each pregnancy, we have been forced, due to our restricted Clinical facilities, to limit our prenatal antisyphilitic treatment at the City Hospital, to those women who show a positive blood Wassermann or active signs of the disease.

In those cases in which the diagnosis of syphilis is made, it is important that their treatment be commenced as early as possible, since we know that the fetus may become infected at any stage of its development. Fortunately the relatively small role played by syphilis as a cause of fetal death during the first three months of gestation makes us believe that most infections take place after this period, and that it is not until the fourth to the seventh months that the full force of the syphilitic infection is brought to bear upon the fetus. In this latter period the infection may cause a premature termination of pregnancy but usually these infants are carried to full-term when they may be born dead, or living with varying manifestations of the disease, or apparently normal.

It is in an effort to protect the second generation against these later intrauterine infections that prenatal treatment is particularly directed. We believe that if adequate treatment is commenced before the fourth month and continued throughout the remainder of the pregnancy, the chances for the birth of a normal non-infected infant are great. Even in those cases where treatment is commenced much later and is theoretically inadequate, much may be accomplished.

and I agree with Marshall, (11), who has stated that the results of treatment of these infected mothers are often remarkable, "for the amount which ordinarially would seem meagre, protects in a large majority of cases both the mother and offspring." Moore, in discussing a recent paper by Wile and Shaw, (12), disagreed with opinions voiced to the effect that the fifth month of pregnancy represented the deadline of effective therapy and said that he believed much could be accomplished by treatment given as late as the eighth or ninth month.

The only justification for adding this heavy burden of intensive medical treatment to the maternal load already incurred by pregnancy, lies in the beneficial result such treatment has upon the health and prognosis of the new born child. Recently Starr, (13), in a study made at the City Hospital, found that of seventy-four syphilitic mothers treated during pregnancy, sixty-seven had living babies at the time of their discharge from the hospital ten days post partum, while of sixty-three syphilitic mothers who received no treatment during gestation, only thirty-two had living babies at the end of the ten day period. Bartholomew, (14), found in comparing the outcome of pregnancies of one hundred untreated, and one hundred syphilitic women who were treated during pregnancy, that premature births were twice as frequent, still births three times as frequent, abortions seven times as frequent, and infant deaths up to ten days post partum, nine time as frequent in the untreated as in the treated women.

It is from such statistics as these that we derive the inspiration and strength necessary to carry on this work in the presence of the surprising amount of ignorance and lack of co-operation on the part of most of the patients with which we have to deal.

The goal toward which we have set our faces in this country is the one which Denmark has almost reached and one to which any Nation might well point with pardonable pride, for in 1930 it was stated on good authority that in that country of three and one-half millions persons, there were only about sixty to be found whose bodies were tainted with the blight of congenital syphilis.

Finally in closing, I may say that the treatment of these women is carried out with the object of maintaining the maternal blood stream as free of spirochetes as is theoretically possible, keeping constantly in mind the realization that the circulation and excretory functions of these patients are already taxed almost to their capacity. For that reason their treatment must of necessity be less intense than that to which other similarly infected patients are subjected. Their treatment should be continuous practically up to the moment of their delivery; in the first three months, injections of mercury or bismuth, preferably of the soluable variety should be used, but where such treatment is impractical, inunctions of mercury are almost as effective. From the end of that time until confinement, the treatment should consist chiefly of weekly injections of not more than .6 grams of neosalvarsan. An examination of the urine should be made prior to each treatment in order to avoid the unrecognized development of any serious kidney damage.

If ultimately this treatment can be given to every such pregnant woman, we may be able to look forward to that time when we shall be spared the pathetic spectacle of infants born with bodies and minds crippled by a disease, preventable in nature, and which they had no share in causing.

## REFERENCES

1. Stokes, J. H.: Modern Clinial Syphilis. Philadelphia. W. B. Saunders Company, 1926.

2. Cannon, A. Benson: A Study of Two Hundred and Two Cases of Congenital Syphilis. J. A. M. A., 89:666, Aug. 27, 1927.

3. Halloran, C. R.: Syphilis and Pregnancy. Arch. Derm. & Syph., 14:222, 1930.

4. De Lee, J. B.: Principles and Practice of Obstetrics, Philadelphia. W. B. Saunders Co., 1928.

5. McCord, J. R.: Syphilis and Pregnancy: Some Results Obtained from Treatment. An Analysis of Two Hundred and Fifty Cases. Amer. Jour. Sypn., 12:181, April, 1928.

6. Gammetoft, S. A.: Syphilis and Pregnancy. Amtr. Jour. Syph., 13:194, April, 1929.

7. Kilduffe, R. A.: Clinical Interpretation of the Wassermann Reaction, Philadelphia: Lea & Febiger, 1926.

8. Findley, L.: The Antenatal Treatment of Congenital Syphilis with Neosalvarsan and Mercury. Brit. Med. Jour. 2:887, Nov. 26, 1921

9. Schamberg, J. E.: and Wright, C. B.; Congenital Syphilis: Venereal Disease Information. Reprint No. 17, Vol. 10, No. 10, Oct. 20, 1929.

10. International Inquiry Concerning Abortive Treatment of Syphilis and Prophylaxis of Congenital Syphilis. Ann. de Derm. et Syph., 10:275, March, 1929.

11. Marshall, C. H. Prenatal Syphilis: The Effect of Ante-partum Treatment. J. A. M. A., 91:702, Sept. 8, 1928.

12. Wile, Udo J.; and Shaw, J. W.: The Prenatal Treatment of Syphilis. J. A. M. A., 95:1791, Dec. 13, 1930.

13. Starr, S. H.: Report of the Obstetrical Service of the Louisville City Hospital for the Year July 1, 1929 to July 1, 1930. Kentucky State Med. Jour., 29:281, June, 1931.

14. Bartholomew, R. A.: Syphilis as a Complication of Pregnancy in the Negro. J. A. M. A., 83:172, July 19, 1924.

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**Physiology of Secretin**—According to Still and his associates, the cholagogue action of secretin is not due to metabolites arising from the pancreas or other abdominal viscera. Secretin, alone, stimulates the hepatic cells, resulting in an augmentation in the flow of bile, which in acute and chronic experiments of from eight to ten hours in length contain lower concentrations of the bile salts. Secretin does not cause circulatory changes in the liver as measured by the liver volume method.

## REMINISCENCES OF MEDICINE*

Howard A. Kelly, B. A., M. D., LL. D.,
F. R. C. S., Emeritus Professor
Of Gynecology, Johns Hopkins University

Surgery and Radium Therapy, Howard
A. Kelly Hospital.

I want this evening, as I have the honor of addressing this great group of the Kentucky State Medical Society, to dwell briefly, for the sake of the inspiration it affords, upon the history of surgery as I have witnessed its development within the period of my own life which began about seventy-five years ago. And in order to secure a background, a suitable *mis en scene,* let us call first upon our remotest ancestor, Hippocrates, and then descend rapidly through the centuries, noting those momenta which finally eventuated in our modern scientific era.

Hippocrates, true scientist that he was, laid down the essentials of scientific progress in three words: *tribe meta logou—tribe,* rubbing, grubbing, getting to know things by intimate contacts, handling them day by day; *logos,* the reasoning upon the facts observed. Or, more simply, know well your facts and then make your deductions from them. This little rule of thumb more or less permeated the early Greek thought. In an ancient book available to everyone, I find similar advice to those who would learn, "Come and see," that is, enter the laboratory, get acquainted, and so learn. And in another place in this work, "Prove all things; hold fast to that which is good," which is our method of trial and error.

It was one of our craft, no less than Clarissimus Galen, of the second century, who blocked all scientific development by affirming that ratiocination is better than first hand investigation (Garrison). In other words, say in astronomy, because the circle is the perfect figure, all heavenly bodies must move in circles; this ushered in the Ptolemaic system of cycles and epicycles, and made progress impossible until Kepler, using Tycho Brahe's records and finding that the plants moved in elipses, cried out, "O God, I am thinking thy thoughts after thee!"

The greatest personality in ancient surgery was Ambrose Pare, striking in presence, noble in his nature, and a Christian who impressed men that surgery had reached its acme. And yet, preceding Pare by one and two hundred years, there were groups of capable surgeons and veterinarians whose lives I would greatly like to investigate. One of such a group is cited by Clifford Allbutt, a veterinarian surgeon "who flourished greatly in Yorkshire some hundred years ago as a marvelously successful operator but evaded all efforts to discover his secret even when extremely ill, and lived to carry on his work many years longer. Finally in age and decrepitude, "implored by his son to tell what he did in the secret half hour before operating . . . the worn-out old man whispered with his passing breath, 'I biles my tools.' "

It was John Hunter (1728-93) who found the lost key and gave epigrammatically in a letter to Jenner the great principle of modern scientific surgery in three words, "Don't think, try."

Thus by leaps and bounds we have arrived at the threshold of the modern surgical era, which may be said to have opened up with the meteoric performance of Ephraim McDowell and Jane Crawford who laid herself on the table in 1809 for the removal of a large ovarian cyst, in the pre-anesthesia days; *par nobile fratrum,* they struck a mighty prophetic note in their violation of all precedents, and even the genius of Lawson Tait failed to rob them of their honor. Another pioneer was Nathan Smith, in 1821 performing the same operation in ignorance of his fellow countryman's success thirteen years before.

Let us pause to praise those early fellows who followed them, the two Atlee's and Charles Clay and Spencer Wells in England, knocking at the door of abdominal surgery, not yet to be fully opened.

The next great stridemaker was Marion Sims, who tackled the time-honored impossible problem of closing vesico-vaginal fistulas of all sorts and sizes and overcame all his difficulties with a pertinacity unparalleled in the history of surgery, with the never-to be forgotten co-operation of the three heroic Negro wenches, Anarcha, Betsey, and Lucy; it took thirty operations upon Anarcha to register his first success. The remarkable character of Sims's work was illuminated in a consultation with August Nelaton of Paris, who was reckoned unapproachable as an operator and was as well a gynecologist. Nelaton called Sims in consultation to a patient with an almost total destruction of the base of the bladder and in such a distressing condition with inflammation, excoriations, and sloughing that she was praying for death. Sims thought at first, as Nelaton had declared, that she was incurable. After much hesitation, however, he gave a favorable opinion and went on to explain how the operation ought to be done. Nelaton, one of the most charming and modest of men, replied. "I understand everything that you say, but I don't feel competent to do the work. I have not the experience nor the skill of manipulation that you possess, and if you will kindly take charge of my patient and perform this operation in my stead, I shall be greatly obliged to you." Sims operated successfully. His "The Story of My Life," one of our greatest medical classics, ought to be read by all.

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*Delivered before the Jefferson County Medical Society, October 3, 1932.

Although Sims acquired a skill in this operation which, I feel quite sure, has never been matched, one must not fail to render due credit to the splendid gifts of Thomas Addis Emmet who wrought great cures in many cases by his long, painstaking, preparatory treatments, coupled with his wonderful persistence. There was a hint of the new course surgery was destined to take in the succeeding generation in the work of Clay of Manchester, whose inveterate habit of extreme cleanliness in his operations in this pre antiseptic era is emphasized by his pupil, Lawson Tait.

Such were our antecedents in the hoary antiquity, as well as our great-grandfathers and our grandfathers who ushered us into the field. Then, suddenly, the skies let down their fertile bosoms and discovery after discovery poured upon the dry, parched earth, on the devoted heads of our immediate predecessors, continuing on into our own day, until the broad field of modern surgery blossomed out so as to become almost unrecognizable. Field after field was exploited as regions previously inaccessible were opened up and surgeons proceeded with *sang froid* of assurance to attack and subdue realms hitherto held immune. So numerous are these new resources that it must suffice in this brief exordium to cite them only categorically.

Anesthesia arrived in the forties to bid the surgeon take his time and to forego all show of brilliancy at the operating table. Pain was removed as by magic, new realms opened up, and the surgeon taking hostages from time, proceeded as never before at his leisure, undisturbed by the appalling cries of his victims, imploring him for God's sake to stop. Nor let us forget that the beneficent regime of anesthesia has been extending her boundaries all through the past eighty years, while we of an older generation, recalling how we esteemed ether and chloroform the *ne plus ultra,* have for the past forty-five years had to bow repeatedly to the younger men who have the *ne.*

Tissue pathology, that foundational science, born with Rudolf Virchow's "Cellular Pathology" in 1858, waited long in these United States and, I think, too, in Great Britain before coming to her own in the profession at large. I well recall our disdain in our student days as we sputtered over such tongue-tripping terms as rhabdomyosarcoma and leiomyosarcoma and their ilk. Bacteriology also, first cousin to cellular pathology, was slow in finding her pace until she became intimately wedded to antiseptic surgery.

How refreshing the showers that fell on our disease-stricken humanity with the arrival of Listerian antisepsis. But what logomachies we waged against this novel and most salutary discipline, the effort to exclude all micro-life from wound areas. As is so often the case, opponents were some of our leading surgeons. Well do I recall my own reaction when my class graduated in 1882 and I noted that Frank Hughes of Newbern, N. C., had written his graduation thesis on "The Germ Theory of Disease;" my comment was, "Utter foolishness!" I have lived to eat my own words ever since.

Our attention is claimed next by that wonderful gift coming out of a clear sky, freighted with two potencies; I refer to the x-ray machine, again an unbelievable and an impossible—an invisible light (?) which traverses the tissues of the body and differentiates them on a photographic plate, the most valuable, as well as the most magical, of all our diagnostic resources, with the additional bonus that in time it has become a precious curative agent!

Another marvelous addendum, of a kindred order, is radium introduced at the turn of the century as an inestimable adjunct, ever increasing, with our growing knowledge and its wider distribution in our clinics, in its efficacy in cancer; and how violently it was opposed at first as a distressing form of quackery.

Lastly, out of the womb of time, in this age of electricity, comes the application of potent high frequency electric currents under perfect control, again in two forms: one as diathermy for the elevation of temperature in particular areas within the body; the other consisting in the surgical use of these currents, compassing effectually the complete dehydration of the tissues, or again, the necrobiosis of malignancy or infection by cooking them in their own juices. The electrosurgical procedure is a sort of knife and fork affair which lessens the loss of blood and sterilizes *pari passu* as it progresses, working in greater depths than hitherto possible; its immediate future is one of great promise. It opens also new fields for local anesthesia, greatly reduces hospitalization, and presents an array of other advantages too numerous to catalogue here.

It has been the privilege of the men of my generation to have lived in a phenomenal age and to have witnessed all these discoveries. I speak advisedly, for none of these factors which are the transforming agents of modern medicine, have found their billet in the medical field without running a gamut of years of adverse criticism. Each has had to be tested out and developed before finding its legitimate field and meeting with cordial acceptance.

Do we not one and all agree, as we glance over this inspiring list, that it is manifestly impossible for any generation to forecast the secrets which lie inchoate in the womb of the future?

Is it not after all the most important consideration that the surgeons who are our juniors have adapted themselves so wonderfully to all these new agencies in mastering every available resource as to effect a complete regeneration of our science and art and to justify the title, The New Surgery?

In closing, I admonish every man who hears my voice to cultivate a sense of thankfulness for all these priceless blessings.

## THE MANAGEMENT OF CUTANEOUS BURNS IN CHILDREN*

EDWARD C. DAVIDSON
Detroit, Mich.

### INTRODUCTION

**E. R. PALMER**: Mr. Chairman and members of the Jefferson County Medical Society: Of all the injuries to which the human body is subject, the burn unquestionably causes the greatest suffering, the most horrible disfigurement and agonizing death. This has been recognized probably ever since primitive man accidentally discovered artificial production of fire. For history tells us that practically all savage races resorted to burning as their favorite method of torturing victims.

The early Hebrew writers when describing the place of punishment of the souls of the damned, pictured a lake of brim stone kept molten by eternal fire. Then those mad Roman emperors, Caligula, Claudius and Nero having become satiated with the sight of Christian martyrs torn limb from limb by lions in the arena further satisfied their sadistic appetites by making human torches of them. Still later the Chistian church itself having come into power used the burning fagot as its favorite method of punishing heresy and other so-called crimes against the church. A notable example of this being that great French heroine, Joan of Arc, who lost her life at the stake.

So we see that the human mind can conceive of no more exquisite torture than that resulting from a burn. What a benefactor then to humanity is he who has originated and perfected a method of treating such injuries that not only lessens pain but also materially lowers mortality and decreases disfigurement.

It is with pleasure that I have the honor of introducing to you such a one in the person of Doctor Edward C. Davidson of Detroit, Mich., who will tonight describe and demonstrate with lantern slides this method.

### ADDRESS—EDWARD C. DAVIDSON

The various phenomena associated with extensive burns have long engaged the attention of investigators of physiology, pathology and clinical medicine. The reaction of the body to a burn strongly resembles the clinical state described by the term, "toxemia," which implies the presence in the circulation of some toxic agent. The more serious cases usually present early in their course a picture commonly described by the term "shock." There is a profound disturbance of the circulatory and heat regulating mechanism, and in all probability equally serious interference with many other functions of the body.

### ETIOLOGY AND INCIDENCE

Pack reviewed the statistics of the Metropolitan Life Insurance Company and those of the Department of Commerce and found that 45 per cent of the lethal burns occurring annually in the United States were in children under six years of age. The records of burn cases admitted to the Children's Hospital of Michigan were reviewed to get some comparative data upon etiology. Although children up to the age of twelve years are admitted the average age of both the lethal and non-lethal cases was three years. In 62 per cent of these, the burn resulted from someone leaving a pail of hot water unprotected, the filling of a bathtub with hot water and the child falling into it, or due to a child pulling a kettle of hot water, soup or coffee from a stove, spilling the contents over itself. This suggests that over 60 per cent of the mortality and morbidity of burns in children is definitely avoidable and due to the negligence or carelessness of someone in leaving a pail of water unprotected or filling a bath tub with very hot water and waiting for it to cool, instead of drawing it at the desired temperature, or permitting a child to play around a stove on which something is cooking.

The second important etiological agent in causing such injuries is playing with matches or around a bonfire. Twenty-five per cent of the cases were of this origin. Children do not play with matches until at a somewhat greater age than those of the first group and the average age was four years and three months.

The remaining 13 per cent were caused in various ways over which the child and parent had no control.

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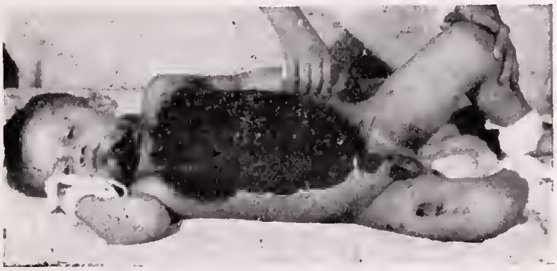
[*] From the Department of Surgery, Children's Hospital of Michigan, Detroit, Michigan.
[†] Read before the Jefferson County Medical Society.

### SEX

Although boys and girls are similarly dressed during the first three years of life, more boys die of burns than girls. This may probably be attributed to the more venturesome spirit of boys which exposes them to greater danger. Statistics of the Metropolitan Life Insurance Company covering a period of over twenty years show that in the fourth year of life the relatively higher death rate of females from burns begins. The margin increases from five to nine years when more than twice as many girls as boys die from this cause. This probably may be attributed to the type of clothing worn, because at all ages the morbidity is greater in boys.



Showing an extensive second and third degree burn of a child aged three years. The parchment-like covering is insensitive. Maintenance of dryness minimizes infection.

### PROGNOSIS

The prognosis in any given case of a burn in childhood must be guarded because of the profound metabolic upset which may occur. It has been stated that an adult may tolerate a burn involving one-third of the total body, while a child will tolerate one involving only one-seventh of the total cutaneous surface. It has further been stated that in regard to prognosis, the extent is of more importance than the depth of the burn. This statement is true for immediate mortality but it is certainly not true for ultimate mortality in children.

The depth of a burn is determined by the temperature of the agent and the duration of the contact with skin. It is well established that thick skin, as in the palms of the hands, offers a greater resistance to heat than the softer, more delicate skin of the protected parts of the body. The same applies to children where the skin of the entire body is thinner, of softer texture and more delicate than that over the corresponding parts of the adult body. Accordingly an intensity of heat applied to the skin of a child for a given increment of time may cause a third degree burn, while the same thermal stimulus on the thicker, more resistant skin of an adult may cause only a first or at most a second degree burn. For this reason large, deep burns are seen frequently in children from what appeared to be a relatively slight thermal trauma This may leave a large granulating wound which is very badly tolerated, early in life and is of grave prognostic significance. Unless prompt epitheliazation is accomplished by skin grafting the picture of exhaustion develops. During this period the incidence of various complications such as otitis media, mastoiditis, suppurative arthritis, osteomyelitis, septicemia and pneumonia is high, and there is practically no reaction on the part of the patient to this added infection. In the adult this problem does not arise because the granulating wound is well tolerated and grafting is a simple procedure which may be done under local anesthesia. In children the matter is a serious one because delay means the development of complications, while the risk of the procedure and its attending anesthesia is considerable.

Several important papers have recently been published giving statistical data about the change in mortality in burns in children since the adoption of the tannic acid technique. Harris has reduced the mortality from 26.6 per cent to 12 per cent at the Sick Children's Hospital of Toronto. Herzfeld has reduced the mortality at the Royal Edinburgh Hospital for Sick Children from 38 per cent to 9 per cênt. Beckman has reduced the mortality in children at Bellevue Hospital from 28.8 per cent to 14.9 per cent.

### TOXEMIA

There is certain convincing evidence that suggests the formation at the site of the burn of a toxic substance, the absorption of which is responsible for the constitutional reaction. Vogt and later Vaccarezza observed that when parabiosis was established between two animals and one was burned, the other showed evidence of toxemia. The symptoms in the burned animal were observed to be less severe under such circumstances than when it was alone. It was further demonstrated that toxic symptoms did not develop in the unburned animal when it was separated from the burned animal within the first twelve hours, but both animals finally died of toxemia when left united.

Pfeiffer isolated cleavage products of protein decomposition from burned skin. Robertson and Boyd demonstrated the toxicity of the products of protein autolysis in burned tissue. They concluded that the toxic material was composed of two elements; one was thermolabile, non-diffusable and necrotoxic; the other thermostable, diffusable and neurotoxic. They further showed that the toxin circulated in the blood stream and upon this was based their clinical work of exsanguination transfusion.

The treatment of burns has generally been of the expectant type and the laborious dressings have been delegated to some junior house officer. During the past few years a number of workers have reported the results of their investigations and the present tendency is toward a more active and rational therapy.

The clinical and experimental facts suggest that the rational manner of combatting the toxemia would lie in some form of local treatment which would prevent the absorption of autolytic products of protein decomposition. This has been attempted in a number of ways. Debridement has deserved a certain amount of popularity, but its application is limited by the severity of the measure. Douglas attempted to accomplish the same purpose by the use of adrenaline and procaine. He hoped that this would liberate the protein cleavage products so slowly that the organism would not be overwhelmed. Absorption may also be prevented by the use of a protein precipitant, which will hold the decomposition products out of solution. Tannic acid accomplishes this purpose in forming more or less stable compounds which are insoluble and held on the surface.

### Method

It has been our practice on the admission of a child with a severe burn to remove all of the blebs and clean up the area thoroughly. The child is then placed in a light tent and left exposed to the air. The burned area is sprayed with five per cent aqueous solution of tannic acid every fifteen minutes until the surface has assumed a light brown color. Nothing is done to the burn thereafter. In our early cases an effort was made to remove the coagulum and treat the wound as an ordinary clean surgical wound. Moistening this dry, parchment-like coagulum immediately liberates the precipitated toxins and results in an exacerbation of symptoms. In one case death resulted from this procedure. In second degree burns if the precipitated material is not disturbed, healing will take place underneath and nothing further need be done. In large third degree burns further surgical intervention is necessary in the form of cleaning up the granulating wound upon separation of the sloughs and skin grafting.

Underhill and his associates have shown that there is an enormous concentration of the blood in burns and further, that a hemoglobin of 140 per cent is incompatible with life after a few hours. During the war it was shown that in shock there was an increased capillary permeability and that fluid was lost into the tissues. Bayliss demonstrated that the most efficient method of combatting shock was by transfusion. Children are shocked quite easily and because of this, as soon as a severe burn is admitted a hypodermoclysis of normal saline is given while blood is being matched for a transfusion. The transfusion is done as promptly as possible and repeated in twelve hours if the patient shows any evidence of collapse. In this manner an effort is made to anticipate shock. Generally no further transfusions are done until late in convalescence when sepsis becomes an important factor. We have been fortunate in getting through this rather critical period without very great difficulty.

Starling demonstrated that the walls of the blood vessels are normally impermeable to colloids. It is also known that the composition of the plasma of a given individual is relatively constant. Dale and Laidlaw have shown, however, that the concentration of blood in histamine shock is not accomplished by an increase of the plasma proteins. They concluded that histamine acts directly on the capillary endothelium rendering it more permeable and whole plasma rather than simply water escapes into the tissues.

Bayliss states that since it is the osmotic pressure of the proteins that preserves the blood from filtering away of its liquid portion into the tissue spaces and causes re-absorption of fluid from them, it can only be effective as long as the concentration of the proteins is unequal on the two sides of the membrane. It is clear that if the proteins can diffuse through the walls of the capillaries in shock the concentration will become equal on the two sides and there is no longer any force resisting filtration and causing absorption.

Because of this concentration of the blood it seemed desirable to study the plasma proteins to determine whether there was an increased capillary permeability. Daily blood examinations were made on ten patients for the albumin, globulin and fibrin content. It was noted that the fibrin and globulin rose, while the value of the blood albumin was depressed. The total plasma proteins revealed practically no change even during the initial period of blood concentration. This suggests that there is an increased capillary permeability during the initial shock period but that this is no longer present during the later toxemia. It would seem that the blood concentration may then be better explained on the basis of increased endothelial permeability than on the basis of the formation of an inflammatory exudate.

The efficacy of adequate fluid intake during the entire course of treatment has long been established. During the initial shock there is a hyper glycemia as in shock of any origin and for that reason it is desirable to give saline instead of glucose. It seemed desirable to study the chloride metabolism in some burn cases. A group of thirty-one burned patients were placed on a known chloride and nitrogen intake. The blood and urine chlorides were determined daily. A marked fall in the blood chlorides was observed and this was not wholly explained by alterations in the renal threshold, by diet, fever, exudation, blood concentration nor by vomiting. There was suggestive evidence that retention of sodium chloride took place. There was a diminished sodium chloride output in the urine which could not be attributed to primary kidney damage, but rather to a lowering of the plasma chlorides to a level below the renal threshold. The disturbance of chloride metabolism was proportionate to the extent of the skin lesion. Because of these observations it would seem rational that normal saline be used for intravenous and subcutaneous medication instead of glucose.

As a result of this vigorous early therapy shock is largely being avoided and the degree of toxemia has definitely been lessened. Instead of seeing death occur during the first few days, our fatal cases are living longer and usually die of some complication.

### Skin Grafting

The management of the granulating wound after all sloughs and coagulum have separated is exceedingly difficult. In an adult it is desirable to skin graft very early to prevent granulation tissue from heaping up and later resulting in a contracture. This is a simple problem because grafting may be done in the presence of infection with a reasonable degree of certainty that a take will result. Moreover, this procedure may be done under local anesthesia. In children, by the time drafting is being considered the morale of the patient is so bad that a general anesthesia has to be used. Children tolerate granulating wounds very poorly and if prompt epitheliazation is not accomplished the child almost invariably succumbs to exhaustion or of a minor infection of the granulation tissue. In other words, early grafting in children is necessary both to prevent contractures and also to save life. Our method of management has been the use of compresses kept moist with Dakin solution. We have cultured all granulating wounds as well as the normal adjacent skin to determine whether the organisms were already present or whether we were introducing them at the time of the dressing. As a result of this study we have found that the chief bacterial offenders are the staphylococcus, colon bacillus, B. proteus, and B. pyocyaneus. These organisms are present not only on the wound but may be found most anywhere on the normal skin.

It has been our custom to use pinch grafts for large denuded areas. Thiersch grafts have been used on the exposed surfaces because of the better ultimate cosmetic effect. Contractures occur only when granulation tissue is permitted to heap up layer upon layer and subsequently be covered with epithelium. Later this granulation tissue forms a scar tissue base which contracts and causes deformity. It is sometimes stated that a circular pinch graft of an extremity will later interfere with the venous and lymphatic return and causes oedema. This is true only if the granulation tissue is permitted to heap up previous to the grafting.

It is frequently found that a profound anemia has developed at the time the child is ready for grafting. The red blood cell count is rarely over three million per centimeter and the hemoglobin is usually under 50 per cent. It is desirable that the blood elements be restored to approximately normal by transfusions before grafting. Very often sluggish granulation tissue is remarkably improved by this procedure and the success of the graft is insured. Transfusions during this late period have been of inestimable value in tiding children over this crucial time.

### Summary

The procedures outlined have resulted in a striking reduction in deaths from shock and toxemia of burns. It would therefore follow that the general mortality has been improved. It is our belief that the high late mortality is due to life being prolonged in very extensive burns that formerly died early, either from shock or the toxemia of the burn.

### DISCUSSION

**J. M. Frehling:** I would like to ask Dr. Davidson what he does in the event patient has received first aid treatment with an ointment which can not be sufficiently removed to permit on aqueous solution to come in contact with the skin.

Also, what he does to prevent the piling up of granulation tissue, and what method of dressing he uses for pinch grafting.

**I. N. Kerns:** I would like to ask Dr. Davidson that if the sloughs have not separated at the end of three weeks, what solution is used to moisten the burned areas.

**Simrall Anderson:** In the lantern slides shown; I noticed that one man has a mustache after treatment had been completed. In cases where the hair follicles have been completely destroyed, it seems as though the hair would not come back.

I have seen pneumonia in a good many cases of burn, and I am interested in knowing if such a complication is less prevalent in this treatment.

**A. A. Shapero:** I would like to ask Dr. Davidson if the tannic acid treatment is indicated in cases of x-ray burns.

**A. M. Leigh:** I believe Dr. Davidson has certainly brought us a message this evening that is worth while. I have used this method my self for the past five years and in every instance find it does exactly what he says it does.

Some of my colleagues are as enthusiastic as I am, while others do not get the good results that are to be expected. I believe that in every instance where a good result is not obtained it is the fault of the techinque employed. The method of treatment is very simple and if nothing more were gained than not having to dress these cases day after day, and week after week, it is worth while. Do as he says; clean the wound thoroughly and apply a freshly prepared aqueous solution of 2½% to 5% tannic acid with an atomizer.

In addition to the local treatment it is important to use every available means to combat shock, and it is especially important to force fluids in order to prevent a concentration of the blood.

I have found that in comparison with the old method of applying unguentine, cases treated by this method run a temperature of 99 degrees F. to 100 degrees F. with very little primary toxemia, whereas the ones treated by the application of an ointment run a temperature from 102 degrees F. to 103 degrees F., often with profound toxemia.

I hope everyone who has the opportunity to treat a burn will follow the plan so ably presented by Dr. Davidson.

**E. C. Davidson,** (in closing): The question asked about cleaning up a burn after an ointment has been applied. The house staff in the hospital have had an extensive experience in this and have found the ideal thing to do is to give the patient an anesthetic and scrub them; however, this is not practicable because of the congestion of the lungs, and we are therefore much opposed to the use of an anesthetic. We have found the method of using cotton pledgets to be the best. The area is gently and repeatedly wiped until clean with cotton pledgets soaked in normal salt solution. It is a hard, tedious job, but it can be done slowly and carefully so as not to cause patient too much pain.

Regarding the piling up of granulation tissue: We try to avoid this by doing grafts early. However, when this can not be done we try to cut the granulation tissues down with silver nitrate. Once in awhile we see a child come in with piled up granulation tissue, as illustrated in picture of circular burns of the thighs, which was seen six or seven months after the accident. In this instance, we gave the child an anesthetic and tried to scrape the granulation tissue away with dry gauze because it was just like cartilage, having piled up about one-half inch thick. This is a rather radical procedure, but if it is not done, the graft will be unsuccessful due to inadequate blood supply.

As to our technique of pinch grafting: The area from which grafts are to be cut is cleaned with iodine and washed off very carefully with alcohol to produce a sterile surface. The granulation tissue is washed with normal saline. Grafts are placed. Then take a single layer of gauze and lay it over on the grafted area. With another piece of gauze press down on the single layer of gauze to a point where gauze has been pressed into the granulation tissue. Then trim away the edges within one-half inch of granulating wound and seal the edges with zinc oxide ointment. Put gauze dressing on top of graft and about five hours after operation begin to soak dressing in Dakin's solution about every two to three hours, which is done for five, six or seven days. Do first dressing at end of that time, when it will be noted that capillaries have formed between the meshes of the gauze. This results in a successful take. Outside dressing is taken up and then picked up with tissue forceps and rotated 180°. If you lift it up without rolling, the grafts will come away with the gauze, but when rolled properly the grafts stick to the surface. All you do then is moisten the wound occasionally with Dakin's solution and put on a vaseline gauze dressing, which is to be changed at regular intervals.

In answer to the question of removing the sloughs of tannic acid, we have found that Dakin's solution has been very satisfactory.

The question was asked about hair follicles being destroyed in cases of extensive burn. In third-degree burns, the epithelial cells may be left at the base of the hair follicles around various glands of the skin. These nests of epithelial cells may act as minature skin grafts.

In regard to incidents of pneumonia. We see an occasional case, usually a child or an adult who has had a very extensive burn, and is completely worn out. Their condition seems to be about the same as one sees in senile people who are confined to bed.

In cases of x-ray burn, there are some people using this method (tannic acid) to treat x-ray burns where there is a small burned area that has a cartilaginous base and infiltrated tissue around the edges. However, it is not my belief that this is an ideal method of treating such a burn. When you have an x-ray burn you usually have a destruction of the deep tissue. I think the ideal procedure in such instances, is complete debridement of the involved area, and the use of a Thiersch's graft or a full thickness graft. I do not believe that in the x-ray burn, the tannic acid treatment, which involves a long period of dressing, should be used because of the likelihood to skin contracture. I think a more radical treatment in this case would be the method of choice in the hands of men who have had some experience with this condition.

# ETHYLENE ANESTHESIA*

Hiram S. Eggers, M. D.

Louisville.

Ethylene as an anesthetic was introduced in March, 1923, by Arno Luckhart of the Department of Physiology of the University of Chicago.

Brown of Toronto investigated Ethylene as an anesthetic in 1922 and read a paper before the Academy of Medicine at Toronto in February, 1923.

Ethylene and Oxygen were first used clinically at Presbyterian Hospital, Chicago, Illinois, on March 14, 1923. Ethylene as a general anesthetic is safe, efficient and practical. It can be used in a general surgical clinic and in obstetrics. It has not replaced the older anesthetics, ether still being the most popular general anesthetic in use at this time but ethylene has certainly reduced the amount of ether used and in conjunction with ether is applicable in most surgical conditions. There are distinct contra-indications to the use of ethylene, these being due chiefly to the possibility of explosion and in the presence of an open flame, spark, cautery or x-ray in use, ethylene should not be used. Were it not for the possibility of explosion I venture to say not an anesthetist present would use any other gas after once becoming familiar with the use of ethylene as an anesthetic. It has been used in the Presbyterian Hospital in more than 20,000 cases without a death and when watching its administration there, at St. Lukes, and the Michael Reese Hospitals it was used in practically every case. There it has almost entirely replaced nitrous oxide and ether as an anesthetic agent because it is more efficient, rapidly produces sleep without the sensation of suffocation because more oxygen is combined with it. It induces anesthesia more rapidly, smoother and there is not the cyanosis present which is often seen when nitrous oxide is employed.

Ethylene is generally administered in the proportion of 80 to 85% ethylene to 15 or 20% oxygen and should never be used without oxygen; nor should a high percentage of oxygen (40-45% or over) be used, as explosibility increases with the increase of oxygen in the mixture. The operation room should be well ventilated because ethylene escaping from the exhalation valve may mix with air in such proportion as to form an explosive mixture as ethylene being but slightly lighter than air is not rapidly diffused.

Coming now to the use of ethylene, the face piece is applied, the ethylene-oxygen mixture is started as a rule in the proportion of 85% ethylene and 15% oxygen. The valve controlling the flow of the gas to the patient is opened and with out struggling, excitement, cyanosis, or excessively deep breathing the patient is usually asleep in two or three minutes. The pharyngeal reflex is now abolished; and if ether is to be used for profound relaxation, a small per cent of ether may now be added and increased as needed. At this time preparation of the patient may be started and by the time preparation is completed the incision may be made. Ethylene plus a preliminary hypo is usually sufficient for all operations not requiring profound relaxation, and occasionally Laparotomy can be performed without the addition of a single drop of ether.

In the administration of ethylene and oxygen the following fundamentals should obtain, first, a well functioning gas machine should be used as a good anesthetic can rarely be given with a poor machine. Second, the respiratory tract be kept from obstruction. Third, the anesthetists to be familiar with the signs of the various stages of anesthesia. In abdominal cases if an 85-15% mixture does not produce sufficient relaxation, a small amount of ether is used at varying intervals for short periods of time; usually one or two ounces being used in operations of an hour's duration. If a small amount of ether is distinctly contra-indicated then a local anesthetic can be used to promote relaxation. Rough handling of the abdominal contents calls for more of any anesthetic agent regardless of which one is being used. The Trendelenburg position also tends to lessen abdominal relaxation. In cases where breathing is too shallow to permit of sufficient pulmonary ventilation and absorption of gas, Carbon Dioxide ($CO_2$) may be added to the extent of 2 to 5%, until the respirations are of sufficient depth. The signs of surgical anesthesia under ethylene are as follows: first, the respiration is regular, uninterrupted and noiseless. Second, the pupils are round, regular, fixed, and react slowly if at all too light. Third, the eyeballs are fixed and the lids are relaxed. Fourth, the color is good and the patient lies quiet. Fifth, the pulse is normal in rate and volume for that patient.

Ethylene has been of the greatest value in operations on the chest, a number of thoracoplasties having been performed without the use of a single drop of ether in any case, lung abscesses have been drained in like manner, ribs resected and empyemas drained and in not a single instance has the patient received one drop of ether, nor did the patient fail to lie still and "take the anesthetic," well in any case. It is chiefly in thi class of cases that I am of the opinion that ethylene is the best anesthetic available. It works exceedingly well in the debilitated, my experience with it in children has been all that could be expected. Ethylene-oxygen anesthesia does less harm to the vital processes than any other inhalation anesthetic, complications following its use are less frequent and there is a wide margin of safety in its use. Its explosibility is the only serious objection to its use and with proper care this can be reduced to a minimum.

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*Read before the Jefferson County Medical Society, Louisville, June 20, 1932.

## DISCUSSION

**W. Hamilton Long:** I appreciate the honor of leading this discussion, and will limit my remarks to the subjects before us this evening.

I haven't a great deal to say about spinal anesthesia. The history of spinal anesthesia since its first use is a chronicle of alternating periods of use and dis-use. We have just seen the greatest renaissance of spinal anesthesia in the past four or five years, and we think it is now clearly on the wane again. The widespread propaganda instigated by Pitkin, Koster and one or two others, three or four years ago, was I think misleading; but had a great deal to do in bringing spinal anesthesia to the extensive use we see now. These gentlemen conveyed the impression that it was applicable as a safe and nearly routine procedure. I think they decidedly oversold the technique. They gave, I believe a false impression in regard to the safety of spinal anesthesia. The best spinal anesthesia is not particularly safe. It will not rank, I am perfectly sure, if statistics were available in a great many cases, with inhalation anesthesia properly chosen. To me, spinal anesthesia has a definite field and should be limited to its particular field, given to a carefully selected group of patients and absolutely withheld from some other types of patients. There have been deaths from spinal anesthesia, in this city, unexpected deaths totally unsolved, sudden deaths, which could not be accounted for. Death occurs so quickly in spinal anesthesia that the physician can not do any thing about it. From the surgeon's standpoint, selection of spinal anesthesia is easy to understand. It is ideal for abdominal work, since complete flaccidity of abdominal muscles and silence of the intestines. naturally are greatly to the surgeon's advantage. My own idea (and I believe firmly in selective anesthesia) is that of finding out what you can about a patient in advance and applying that anesthesia to individual patients which is the best, in our judgment, we could use, limiting spinal anesthesia to cases such as strangulated hernia, intestinal obstruction and conditions of the respiratory tract which apparently contraindicate the use of inhalation anesthesia. I think that spinal anesthesia should be given to patients only with blood pressure sufficient to withstand a sudden drop; because this sudden drop may be caused with or without ephedrin. I personally like to use ephedrin, although there are two schools of thought regarding its use,—one led by Labat and the other by Pitkin. I believe that Labat's method is the safer for anesthetists and surgeons to follow. Labat is violently and definitely opposed to ephedrin or any of the positively acting vaso-constrictor group. It is not the systolic pressure which is important, it is the diastolic pressure you want as more nearly representing the vital reserve.

In some clinics and operating rooms where the spinal anesthesia is given by an assistant, no blood pressure is taken, no attention is paid to the reaction of the patient to spinal anesthesia if any, and they proceed right along that line. In such instances, one or two deaths have happened in this city, and they have also happened where the procedure was supervised. Sticking to selective anesthesia, I simply would say that spinal anesthesia has a definite field, and the cases to which it is applied should be selected for its use, for some definite reason, and not by routine.

Now then, for ethylene. Like Dr. Eggers, I am very fond of ethylene anesthesia. It was a coincidence in looking over my records to find that the first ethylene anesthesia given in Louisville, was on June 20, 1923—exactly nine years ago today—it having been discovered in the fall and winter of 1922-23, and the first Ethylene anesthetic given clinically in March, 1923. Dr. Luckhardt discovered ethylene anesthesia in the fall of 1922, and as Dr. Eggers has stated the clinical use of it in operating room on a human patient for a real surgical procedure, was in the Presbyterian Hospital, March, 1923 by Dr. Isabelle Herb. I have not given a great many of them lately because it means carrying that much more gas and that many more tanks. The anesthesia situation here in Louisville I might say in passing, is apparently a unique one. I know no other city of Louisville's size with a situation such as we nave here. The energy we waste driving around and packing and unpacking our equipment is considerable. If each of us could go to one hospital, install permanent equipment and supplies, and leave it all there, patient, hospital, surgeon and anesthetist would all profit.

The action of ethylene oxygen is between $N_2$ $O_2$ and the complete relaxation of ether. You can achieve a degree of anesthesia 50% greater than can be obtained with nitrous-oxide. Respiration is much more quiet, simulating that of normal sleep. This is a great advantage in preserving the patient's vital reserve, and a great advantage to the surgeon, as Dr. Eggers has said. I would use it more, were it not for the fire and explosive hazard and were it not for this same fact I believe it would have completely replaced nitrous-oxide absolutely within a few months' time and rendered the latter obsolete.

In the face of this admitted hazard, ethylene has definitely achieved a permanent place in our armamentarium. Many large clinics over the country are using it daily, apparently without thought of this danger, and have been doing so for years. Just as men who are experts can use dynamite for their life time with safety and control, while a novice would blow himself up the first day, so as we become familiar with safety measures and apply them, we will gradually eliminate the explosion danger of ethylene. Ether fires and explosions still occasionally occur, and with fatal results; but so established and entrenched is ether, that they are set down as occasional, inevitable accidents and forgotten.

**H. E. Richey:** There are a few phases of anesthesia which I would like to merely mention and in passing casually make a few rambling remarks.

(1) Pre-operative medication:

This is a very important part of the conduct of a good, smooth anesthesia, as well as an important adjunct to the patient. It sends the patient to the operating room quiet, assured, relieved from anxiety and worry, and gives an easy smooth induction to any type of general anesthesia. Furthermore it reduces the post-operative nausea and vomiting which is such a distressing feature to many patients, and gives a few hours sleep during a very trying time to the patient.

(2) Selection of the type of Anesthesia.

The perspective operative risk should be seen by the anesthetist some time before the operation and a thorough physical examination should be done paying particular attention to the respiratory and cardio-vascular systems the basal metabolism, age and general physical condition of the patient.

With all these findings in mind he should confer with the surgeon and the internist or general man who is very familiar with this patient and decide upon the type of anesthesia best suited for this particular patient.

(3) Careful Observation of the Patient during the course of anesthesia:

A careful watch should be made of the respiration, the pulse, color, pupils, and blood pressure of the patient and the anesthesia or medication controlled by these findings.

(4) Post-operative Care and Medication:

I feel that the anesthetist should have the opportunity to watch his anesthesia patients after anesthesia and prescribe for as he sees fit when occasion arises. Particularly is this true in cases of spinal anesthesia where headaches, and other spinal complication may arise and with which he is able to cope very efficiently. We are having many new forms of anesthesia given to us every day and it is our responsibility to select the grain from the chaff.

My experience with ethylene is limited to my residency in the Louisville City Hospital, but while there we gave only a few but all of which were very satisfactory particularly as regards relaxation and lack of sweating during anesthesia, and lessening of post-operative vomiting and nausea.

Spinal anesthesia has been very satisfactory in my hands to date and I have had no fatalities which I could attribute to spinal anesthesia alone, I have been using novocain crystals, dissolved in the spinal fluid and re-injected into the spinal canal to produce my anesthesia and in cases in which a prolonged anesthesia was desired I have been using nupercaine solution prepared for use in spinal anesthesia alone, using one c. c. of said solution along with a reduced dose of novocaine crystals. Anesthesia have been produced which last as long as two hours and forty-five minutes and with a very satisfactory anesthesia all the way through the operation.

I think that spinal anesthesia has a definite place among our other anesthetics but that it should be only a selective anesthesia and not be used indiscriminately. It should be administered by those trained in its technic and familiar with its peculiarities and not the occasional operator or the uninitiated.

**Hays Gailbreath:** I shall limit my remarks to that branch of anesthesia portrayed by the splendid motion picture we have witnessed this evening. It would be impossible to discuss all types of anesthetics in the few hours allotted this evening. I should like very much to discuss Dr. Egger's paper on Ethylene; but due to the lateness of the hour, shall confine my remarks to spinal anesthesia.

The first technique illustrated in the motion picture; namely, the use of spinocaine, is not very widely used in this city. I noticed that ephedrine was given along with the novocain when anesthetizing the skin for the spinal puncture. Personally, I would prefer giving the ephedrine from 10 to 15 minutes before the spinal puncture, in order that the full effect would be realized before the blood pressure drop occurs. There was no mention of preliminary medication. This is very important. Derivatives of barbituric acid are very useful for this purpose, the patient arriving in the operating room in a quiet mental state, the element of fear being eliminated, and often times the operation is completed without the patient realizing that anything has been done. It is also wise to give a preliminary of morphine and atropine, as inhalation anesthesis may have to be resorted to later.

The picture showed the patient was allowed to have a drink of water. While this is advocated by some men, I believe it would be better to withhold liquids until all possibility of nausea is gone, as very often vomiting occurs. It is all right to moisten the lips and also to place cold, wet cloths on the face.

The height of anesthesia is controlled not only by the amount of spinal fluid removed, and the amount of anesthetic drug injected; but also by the interspace where the spinal puncture is made.

The second method demonstrated; namely, the use of novocain crystals, is the more popular method in this city. However, they measure the height of anesthesia by the amount of spinal fluid removed. If they desire an anesthesia to the umbilicus, they remove 2 c. c. of spinal fluid and mix with 150 milligrams of novocain; and for a low anesthetic use 1 c. c. of spinal fluid with 100 milligrams. This would work out beautifully if every patient had the same amount of spinal fluid. But, of course, this is not the case, and the small person would get a different degree of anesthesia from a large robust person. Every case has to be studied separately.

Considering the physiology of the fall in blood pressure. Of course, we realize that the dilatation of the splanchnic vessels due to blocking the splanchnic nerves which supply constrictor fibres to the splanchnic vessels, is one cause of this fall in blood pressure and probably is the chief factor concerned. But there are other factors involved: When you consider that in blocking the nerves to the lower half of the body, you have included a large amount of skeletal muscle which is in a relaxed state and contains a great deal of blood, this would cause some fall in blood pressure. Also, in high anesthesias some of the intercostal nerves are blocked and the aspirating power of the thorax is diminished. Likewise, the abdominal muscles are relaxed and you get no assistance from these accessory respiratory muscles. This has a tendency to diminish respiration and with the slowing of respiration an anoxemia is developed. The patient then has a diminished blood pressure and a degree of cyanosis ensues. At this time it is advisable to supply oxygen through a tube in order to overcome the anoxemia. Later on, if it is necessary to administer epinephrine, it works much faster in a blood stream containing oxygen.

The Trendelenburg position is advisable in most cases but is not absolutely necessary if there is some contraindication to its use, such as an appendiceal abscess where you fear some of the pus may go into the upper abdomen. It was formerly thought that the novocain would diffuse in the spinal canal and reach the cerebral centers if the Trendelenburg position was not used. This has since been disproven. The reason we use this position is to overcome the cerebral anemia and supply sufficient blood to these centers.

The use of ephedrine is advised by some and condemned by others. Personally, I believe it should be used in all high anesthesias unless there is an abnormally high blood pressure to begin with, and in low anesthesias if the systolic pressure is below 100. LaBat states that he has seen no fatalities from the use of ephedrine although he does not believe in its use. In my experience I feel that ephedrine is helpful and unless its use is proven harmful I believe it should be used.

**J. W. Heim:** I have enjoyed the pictures and paper very much. The pictures reminded me of the ones in the books, on surgery; the trouble is that surgery is very seldom like the pictures in the books.

Theoretically, spinal anesthesia paralyzes the large abdominal blood vessels and more blood is pushed into them, which lowers the blood pressure. If you give ephedrin and contract the blood vessels that are not paralyzed, you simply dilate the paralyzed vessels more which does not raise the blood pressure but starves the vital centers more because there is less blood going to them. In my experience, the blood pressure goes down in spinal anesthesia whether you give ephedrin or not. Dr. Long mentioned that you should have an anesthetist. A lot of surgeons have a student nurse watch a case, just any person to watch the patient, under spinal anesthesia. But, there is so little to do if patient does badly, under spinal anesthesia. It is the most uncontrollable of all anesthesias. In the cases I have seen, it seemed to me that they just gave the spinal and hoped that patient wouldn't die.

As regards ethylene, it is the concensus of opinion among all of us that ethylene is the better anesthetic in that it relaxes patient more than nitrous-oxide. It is a little more disagreeable to take on account of the odor, to most people, and I believe that some say that it nauseates them more and some say that it is about the same as nitrous-oxide from this standpoint. I have refrained from giving it because of the explosive quality of it. There is not a hospital in Louisville that is equipped to give ethylene as manufacturers advise they should be equipped.

All electric light switches should be out in the hall and there should not be a switch turned on in the operating room where ethylene is being used. No engines, no motors. The humidity in the operating room should be at 54 or over. You can not be safe, using ethylene by hoping the steam escaping from the sterilizers will make the operating room humid enough; because sometimes it might be 50 and in a few minutes 30 or less. You should have a humidifier going all the time with an instrument to measure the humidity and keep it at 54 or over, to be safe. There should be a vapor screen around all electric lights in the operating room, at the entrance to each door there should be a copper plate grounded to a water pipe underneath, which plate should be large enough so that anyone who enters would be certain to step on it, and thus dissipate the static they might gather by walking through the hall. If you should keep the humidity at 54 it would make the operating room very uncomfortable for the people working in it. It also would make a film of water over every object, including the walls. Eventually, the plaster would fall, and it has been recommended that the walls be wall-boarded with cork to prevent this.

As I have said, I have refrained from giving ethylene because of its explosive quality. I think if you should give ethylene, especially where the operating room is not equipped for its safety, you would be severely criticized if it exploded. One fortunate thing about the explosive quality of ethylene, however, is that if it explodes you are not likely to be where you can hear any criticism.

**O. O. Miller:** I wish to speak specifically concerning ethylene and its use in thoracic surgery.

The patients we present the surgeons for thoracoplasty are naturally not the best anesthetic risks. They are cases of chronic, advanced pulmonary tuberculosis. With the use of ethylene, as has already been stated, the patient has a normal respiration and this in a measure prevents the aspiration of tuberculous material from the cavities into the contra lateral lung, and reduces the possibility of a bronchogenic spread. Ethylene is a smooth anesthesia and is well taken by these patients. There is, practically speaking, no shock from the anesthesia, and for this reason I naturally prefer it in this particular type of cases.

**D. P. Hall:** It seems that every one this evening has talked on anesthesia with the exception of the surgeons who really should be very much interested.

As one doing surgery, I should like to say a few words as to spinal anesthesia in an attitude which is not biased against this form of anesthesia.

We have used spinal anesthesia in well over two hundred cases; this is not a large series I am aware, and in this series we have had one fatality, this patient being obese with a ruptured gastric ulcer, and whom we thought died as a result of pulmonary thrombosis.

It has been a pleasure in operating when spinal anesthesia is used, due to the extreme relaxation obtained and the immobility of the intestine. Operative procedures have been able to be carried out in a much shorter time with this method, and it has seemed to us with less shock to the patient.

In upper abdominal work, we have had more difficulty, especially in work on the gall bladder and ducts where it has been necessary to make an undue amount of traction. We have found one procedure in doing cholecystectomies which has helped us materially, and that has been, by placing a clamp on the gall bladder and making traction, at the same time having the patient exhale, thereby forcing the diaphragm down, and forcing the under surface of the liver and gall bladder out of the incision, by having the patient do this two or three times and keeping traction on the gall bladder, it is surprising the degree of exposure one may obtain.

No particular difficulty has been experienced in doing a gastro-enterostomy under spinal, but it has been very nearly impossible to do a pylorectomy without the addition of light gas anesthesia. Dr. Long has said, most patients should be put in the Trendelenburg position when using novocain or neocain. We have found this to be a good position except in obese patients where it may be dangerous with high spinal due to the crowding of viscera against the under surface of the diaphragm and causing much embarrassment in respiration.

We have used neocain and have never changed because we have found that it is better to learn one drug well, know its actions, and know the onset of its ill effects so that they may be properly treated, than to use similar drugs with different technique. Ephedrine has seemed to stabilize the circulation somewhat and prevent too rapid a drop in blood pressure.

It might be well to mention an erroneous thought that seems to have arisen, that patients with extremely high blood pressure stand spinal anesthesia well; this we feel is untrue after doing a Cesarean section on a patient under spinal anesthesia whose systolic blood pressure was 240 and which dropped during the operation to a systolic pressure of 30. It seems that these are the type patients that succumb more readily to spinal anesthesia.

A word of caution as to the use of spinal needles; it is always well to examine the needle and stylet very carefully before doing a spinal puncture, as on two occasions we have found a small break in the needle which we are sure, had they been used might have ended in the breaking of a needle in a spine which is a very serious complication, and should it happen, the technique which is used at the Lahey Clinic, simplifies its removal.

Spinal anesthesia is certainly gaining in popularity because of the simplified and safer procedures which are now being used; but certainly the cases on which it is used should be selected; and one should not say, as has often been said, "this patient doesn't seem to be able to stand any other form of anesthesia therefore we will use spinal."

**Ben F. Underwood:** Personally, I think we should suit the anesthetic to the patient and not the patient to the anesthetic. One man will do all his work under spinal and another all under ethylene. So far as spinal anesthesia is concerned, have given quite a few and am afraid of them. I have never seen a spinal anesthesia in which the patient did not have a fall in blood pressure.

As far as ethylene is concerned, have not had any experience with it, but am afraid of the explosive part of it. Very important to give a preliminary hypodermic and have patient's mind in the right attitude, examine patient carefully and use sedatives. It has been our experience that better relaxation may be obtained with gas-ether than with any other anesthetic. Therefore, we have found it is the safest outside of local. Of course, everybody has different ideas on this.

**L. Wallace Frank:** The subject of anesthesia is more important to the surgeon than to probably any other specialty in the practice of medicine. The first speaker, Dr. Long made a very important statement when he said that there should be much greater co-operation between the anesthetist and the surgeon, in other words that the anesthetist should be considered a very important part of the surgical team. To my mind he is more important than the assistant and his responsibility is much greater. It is absolutely impossible for the surgeon to operate and at the same time be worrying about the way the patient is taking the anesthetic. We have made it a practice after consulting with our anesthetist to use the type of anesthetic which is best fitted to the individual case.

In certain cases spinal anesthesia is the one of choice but in our opinion is not applicable to all patients by any means. In upper abdominal lesions it is not particularly desirable on account of the Trendelenburg position which must be used and which permits the viscera to fall backwards under the costal margin. In so far as the blood-pressure of the patient is concerned we give it little concern. We have operated patients having a systolic of 90 under spinal anesthesia with no untoward effect. Personally, I am a little afraid to use spinal anesthesia on patients with very high blood pressure. I am certain that we have noted splanchnic paralysis with secondary adynamic ileus in three cases where spinal anesthesia was employed.

Of the inhalation anesthetics, ether is by far the safest especially in hands of an untrained man. Ether is the basic anesthetic and is used more extensively probably than all others put together.

It can almost be administered with safety by a novice. This statment is not true of nitrous oxide or ethylene. These gases must be administered by an individual trained in anesthesia and of the two gases, ethylene is in my opinion the more preferable. It causes less cyanosis, the breathing is smoother and easier and there is decided more relaxation. We have employed it in all cases where major surgery is being done for pulmonary tuberculosis and have yet to see any bad effects in the pulmonary lesion following its administration. The great objection to ethylene has heen that it is highly inflammable. Some ether oxygen mixtures are just as inflammable as ethylene. With the ordinary precautions of avoiding the use of a cautery during its administration and prohibiting the presence of any open flame ethylene can be used with little fear of explosion. In our Institution the tables and floors are grounded, the surgeons and nurses are not permitted to wear rubber soled shoes which might possibly insulate them and so permit them to obtain a static charge which might cause a spark when the patient or table is touched; the electrical fixtures are sunk into the wall so that no spark from them can escape. With these precautions together with those previously mentioned the surgeon should loose his fear of explosion, the only drawback to the use of ethylene gas in anesthesia.

**J. W. Heim:** This was not my idea, Dr. Frank. I quoted the "International Anesthesia Research" as to what was recommended by manufacturers of ethylene and by the United States Bureau of Mines. This Bureau of Mines analyzed the explosive power of all gases and found that ethylene was explosive with as little as 3% ethylene up to 80% ethylene.

**Virgil E. Simpson:** The Committee on Revision of the United States Pharmacopea has before it now the question of admission of ethylene to the edition under revision. As a member of that Committee I should like to have an expression of opinion from the Anesthetists of this society. The Committee recognizes the rather free usage of this anesthetic throughout the country and its several rather desirable qualities, but also appreciates the difficulties attendant upon its administration. It would appear that its use is diminishing rather than increasing. In your opinion will that trend continue or will safeguards be developed, making its use practicable in a more general way? If not, then do you think it still is useful enough under special conditions to warrant its admission and the standardization of its manufacture?

Another question I would like to have you Anesthetists discuss is that of the desirability of having the Pharmacopoea establish some regulations covering the containers for the various gases used in anesthesia. Would it be practicable to have each gas marketed in a container of a designated color? If oxygen were required to be placed in red cylinders, nitrous oxide in blue ones, ethylene in yellow ones, for example, would that tend to lessen the likelihood of error incident to losing detachable labels? One of your group has been asked to communicate his views in writing and I wish to extend the invitation to all to do so. Your views will be placed before the Revision Committee provided you present an analysis of the reasons for your opinions.

The Revision Committee must also determine the selection of desirable local anesthetics for admission into the U. S. P. XI. Two groups must be considered: one having local anesthetic action when injected into tissues or applied to denuded skin or mucous membrane; the other having the property of penetration through unbroken skin and mucosa. Toxicity, possibility of sterilization, potency and keeping qualities constitute the composite desiderata for such admission. An expression of opinion as to preference by the surgeons and other specialists will be appreciated.

May I address myself to the ever argued question, what anesthetic shall be given and who should determine what anesthetic shall be used? It is relatively easy for the surgeon to decide, on entering the operating room, what anesthetic he wants the patient to have. Often he might as intelligently decide in his library or at his club. Such a decision might properly be questioned by both the anesthetist and the internist. The recognition of gall bladder disease does not connote an appreciation of the cardiac status nor an understanding of renal adequacy. An acquired mechanical skill in relieving a surgical condition may not be accompanied by a discriminating discernment of metabolic dysfunction. If every prospective surgical patient except those in dire emergency were subjected to a survey by an internist, both patient and surgeon would have mutual grounds for approval. If a surgeon orders a patient prepared for operation after a negative urinalysis of a single specimen and instructs the anesthetist to give ether, and a blood sugar of 200 is found fasting the following morning, and a high degree of acidosis follows, can his arbitrary decisions be excused? If a tonsillectomy is done under a general anesthetic without the knowledge of a serious myocardial disease which was in evidence, and the patient is seen in extremis in consultation six hours afterwards is the operator to be commended? If a surgeon perpetrates a surgical insult for an elective abdominal surgical condition, ordering ether as the anesthetic because he wants relaxation, on a patient with an active, exudative, bilateral, pulmonary tuberculosis, should his enthusiasm be damped by some internist's opinion? If a surgeon discourages a poor overwrought heart after an ill advised thyroidectomy by fatally taxing its capacity with liters of fluids, might not the counsel of an internist be held less lightly? These and more have fallen to the lot of one observer during a period of less than six months.

Questions of pure operative technique are largely, usually entirely, the province of the mechanic, but decisions involving operative interference, pre-operative and post-operative care, are common ground for internist and surgeon alike. In the selection and administration of the anesthetic, the anesthetist should hold membership in a triad of counsellors striving to successfully encompass certain desirables for the patient's benefit. That responsibility for the outcome of an operation is solely the surgeon's is not worthy of serious consideration. We must all share alike.

**Hiram S. Eggers,** (in closing): I do not recommend Ethylene as the best anesthetic in all cases, occasions arising when, in my opinion, some other anesthetic would be of greater satisfaction to the patient and surgeon, due to the character and site of the operation and the age and condition of the patient. I agree with Dr. Virgil Simpson that the physician referring the case for operation should be consulted about the anesthetic agent to be employed.

In spinal anesthesia, I am in the habit of giving a preliminary injection of ephedrine in all cases and am positive the drop in blood pressure is not nearly so great as it is when ephedrine is not used. If ethylene has not been accepted as an official drug then I think it is about time that it is accepted. Its use in hundreds of thousands of cases has compared favorably with any and all the anesthetic agents; care, attention and knowledge of its use being essential in the induction and maintenance of anesthesia.

# THE USE OF BISMUTH IN THE TREATMENT OF SYPHILIS*

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Levaditi and Sazerac (1) in 1921 introduced bismuth in the treatment of Syphilis. Their conclusions, after considerable study and experimentation on man and animals, were that bismuth was relatively painless and non-toxic as compared with mercury, and it seemed equally effective. Because of the recognized ability of the investigators this new remedy was immediately tried by a great number of clinicians in Europe and America and it has since become very popular and is used routinely by many men in the treatment of Syphilis. It is interesting to review the literature of the last two years to learn how well Levaditi's original conclusions have been borne out, and what further conclusions can be reached after ten years trial of this drug. Recently, at the dedication of the new Dermatological Clinic at Strassburg, the entire meeting was given over to a discussion of the place of bismuth in the treatment of Syphilis. Since then there has been a veritable flood of articles on this subject, many of them being largely quotations from the records of this meeting.

If we recall briefly the history of syphilis we find that mercury was introduced in the treatment only fifty years after the disease became prevalent in Europe. Every conceivable mercury compound and method of administration was tried. At one time mercury fell into disrepute for over a hundred years because of the extravagant claims of some of the profession, and because it was used too vigorously. We now know pretty well the advantages and limitations of mercury treatment, the choice of mercury compound to use, and the method of administration. History is now repeating itself with bismuth; although, because of the modern tempo and scientific methods the cycle will be much shorter. Even in this age however, ten years is too short a time to decide finally all the questions arising with bismuth therapy, but the major points have been established and we can say pretty definitely what is its place in the treatment of Syphilis.

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A great number of bismuth compounds have been tried. We shall confine our discussion to some of those compounds which have been widely used. Bismuth has been administered by mouth and by inunction. Both of these methods have been found useless (2). It has been used intravenously in aqueous solutions but the therapeutic dose and the toxic dose are about the same. All authorities advise against this method (4). There has been one fatality reported in this country (3). There is no excuse for the advise given by detail men to use bismuth intravenously. There remains, then, the intramuscular method of administration. This is the only safe and effective way of giving bismuth.

There are three general types of bismuth compound:

1. The water soluble preparations:

Potassium or Sodium Bismuth Tartrate; Bismuth Thioglycollate (Thiobismol), with a bismuth content of 70 mgm. per dose; bismarsen, with bismuth content of 48 mg. per dose.

2. The oily suspensions of:

Potassium or Sodium Bismuth Tartrate, with an elemental bismuth content of 66 mgm. per dose;

Bismuth Salicylate with elemental bismuth content of 120 mgm. per dose;

Metallic Bismuth;

Quinine-Iodo-Bismuthate with an elemental bismuth content of 48 mgm. per dose;

3. The oil-soluble compounds:

Quinine-Iodo-Bismuthate (Quiniobine) (Spirobismol) with a bismuth content of 60 mgm. per dose.

Bismo-Campho-Carbonate (Biliposol with 80 mgm. per dose) (Bismocymol with 100 mgm. of bismuth per dose).

Cole, et al (4) say that "The ideal bismuth compound should probably be one giving rapid absorption from the injection focus, and yet not so rapid but that there will be an appreciable after-period of absorption lasting for days or a week or more. The preparation should be capable of exact dosage. It should not be painful or lead to late abscess formation. The ideal bismuth preparation must show from its excretion curve of metallic bismuth in the urine and feces that the drug is not only being absorbed, but that while some is stored in the system, a certain appreciable level of bismuth is circulating continuously in the blood stream, and is being excreted. Naturally, through it all, a good preparation should give good clinical results." Hanzlik (5) says much the same thing when he states that the important criteria are those of vehicle, solubility, tolerance, absorption and excretion.

The water soluble preparations are readily absorbed. It is not difficult to give the exact dose intended. They are however apt to be painful if given in adequate doses. They are too readily absorbed, so that in order to keep the patient under active treatment the doses must be repeated every day or so. There seems to be a greater incidence of stomatitis with the water soluble preparations than with the oily compounds. Stokes, and O'Leary, have used Bismarsen extensively. This is a preparation of bismuth and an arsenic compound similar to the arsphenanines. It is supposed to have the advantages of a combination of these drugs. The preparation is tolerated well. It is the most original American contribution to bismuth therapy. Stokes is very enthusiastic about the drug for most types of Syphilis although he does not advise its use to the exclusion of the Arsphenanines and Mercury. O'Leary and Brunsting (6) have noted in their series a greater incidence of neurorelapse than with other methods of treatment. O'Leary is of the opinion that bismarsen should not be used in early active cases because its action is not vigorous enough. He thinks it is of value in patients who acquire Syphilis after the age of 45 when they are notorious for their poor tolerance of the arsenicals and mercury. He also uses it in occasional courses for those older cases that are Wassermann-fast, but have no clinical signs or symptoms of the disease. The preparation is used very little in Europe. It is doubtful if the arsenic in bismarsen is in the same combination as in the arsphenanines.

It is probable that bismarsen has about the same advantages and limitations that are common to the other aqueous solutions. It probably has a definite place in the treatment of infants and of patients who have had an arsenical dermatitis. We can then say that the watery solution are not, in several important respects, ideal, but that they will probably have a limited usefulness in treating patients where rapid saturation with the drug is desirable; much the same position that is held by the soluble mercury salts.

Hanzlik has recently introduced "iodobismitol." This is an acid salt of bismuth whereas in all of the other salts bismuth is an alkaline radical. The salt is dissolved in Ethelyne glycol rather than water. Hanzlik claims for it that it will penetrate the nervous tissues better than the other bismuth compounds. Contrary to general opinion, Hanzlik thinks that this solution and the watery solutions in general are absorbed and excreted rather slowly and steadily and in general, satisfactorily. This preparation has not been widely tried so that no conclusions can be drawn as to its value.

The oily suspensions were the preparations that were originally used by Levaditi and his co-workers. They have been more widely used than any other type, and have been found to be effective remedies. Of the various salts, all have their champions. The suspension of metallic bismuth has been found to be of doubtful value. The Quinine-Iodo-Bismuthate has a relatively low bismuth content but it may owe some of its value to the Iodine radical its composition. All of these preparations have several faults. It is difficult to give an exact dose. They are absorbed slowly and irregularly. There is a tendency to form indurated, tender masses from which the bismuth is very slowly absorbed, and which sometimes develop into sterile abscesses. The oil suspensions have the advantages of relative painlessness, and slow absorption, so that the doses need not be repeated oftener than every five to seven days. Reactions and untoward side actions are mild and infrequent.

The oil soluble preparations were first used in 1925. They seem to be growing more and more popular. They are much more widely used in Continental Europe than in America. A number of combinations can be made by the addition of lecithin, which is itself a lipoid, and acts as a catalyst. There are two solutions commonly used in this country, Quiniabine, which was first prepared in Jaddassohn's Clinic, and Biliposol, which Levaditi sponsored. "The liposoluble salts seem to combine the advantages of the water-soluble salts and of the oily suspensions; the rapidity of action of the first, and the prolonged action of the latter," (7) They are less irritating than the water soluble salts and do not form intramuscular deposits like the insoluble salts.

They seem to constitute a happy medium between the preparations known up to this time, and promise to be the preparation of choice. However, they have not been used long enough, nor have enough research and excretion studies been made on them to determine their correct place in the treatment of syphilis. (3)

### Comparison of Arsenic, Bismuth, and Mercury

All are agreed that spirochetes and cutaneous lesions will disappear more rapidly with arsphenamine than with bismuth. Schwartz, (7) (8) (9), Pinard (7), Emery (8), and a few others use bismuth exclusively. Since 1925 Schwartz has used bismuth exclusively on over five thousand patients. He thinks it is equal to arsphenamine in all respects. He has seen no bismuth resistant cases. He has been able to change to negative the serology in Wassermann-fast cases. He says that serious accidents do not happen with bismuth, and that the serological effect of bismuth is more certain and durable than that of arsphenamine. Few authorities are as radical as this. It is well to remember when we quote the opinions of Levaditi and Schwartz that these men did much of the original work with bismuth and that they probably have a pardonable enthusiasm for their favorite drug. Jeansselme (10) thinks that the present increase in the incident rate of Syphilis in France is due to the relative abandonment of arsphenamine therapy. Most men insist that arsphenamine is an essential part of the treatment of early Syphilis, (8) (10) (11) (12). The great majority feel that arsphenamine, bismuth, and mercury should all be used in the routine treatment. Sezary (8), Harrison (12), Stokes (10), and others think there is an advantage in the concurrent use of arsphenamine and bismuth. Wassermann-fast cases *have* been recorded after the use of bismuth; and, in the experience of most men the cases that are Wassermann-fast with arsphenamine and mercury are apt to be resistant to bismuth.

Bismuth is similar in many respects to mercury, but clinically it has proven to be superior to mercury. It is less painful. It will sometimes cause a stomatitis but this is not as severe or as difficult to control as a mercury stomatitis. Like mercury it is nephrotropic rather than hepatotropic like arsphenamine, but kidney damage is much less frequent from bismuth than from mercury. Very few serious reactions or deaths have been recorded from bismuth. Because it is so well tolerated, it is very useful in the treatment of Tertiary Syphilis, in infants, in elderly patients, in visceral Syphilis, etc.

Bismuth is widely used in treating Congenital Syphilis. Wright and Perlman (14) and Doles (15) have reported good results in the treatment of Interstitial Keratitis. They used arsenic and bismuth simultaneously. A few men have observed good results with bismuth in C. N. S. Syphilis, but bismuth is slowly and irregularly absorbed by the nervous tissues and the great majority of men feel that it is no more effective than the other accepted forms of treatment. In Paresis it is by no means as effective as Tryparsamide or Malaria.

The average adult dose of bismuth should be between 90 and 150 mgs. of the element per week. This will vary somewhat with the preparation used and will be smaller if you are giving arsphenamine and bismuth simultaneously. Cole (4) states that the total weekly dose should be between 60 and 200 mgm. and the total for a course ten weeks from 600 to 2000 mgs. Schwartz (9), who uses Biliposol exclusively, gives about 160 mgs. per week. Sezary (8) sometimes gives as much as 300 mgs. per week of an oily suspension. Col. Harrison (12), who uses an oily suspension, gives 2000 mgs. to 3000 mgs. in 13 weeks combined with doses of Neoarsphenamine.

The efficiency of the preparation seems to depend on the content of the bismuth element, but this may be more apparent than real. As with arsenic where the therapeutic result depends more on the compound used than on the amount of arsenic given, it may be that the bismuth compound used is more important than the amount of elemental bismuth. This remains to be determined.

### The Untoward Results of Bismuth Therapy

As was stated previously, bismuth may cause nephritis and stomatitis and rarely a hepatitis, and rarelier still a dermatitis, or a purpura. Some patients lose considerable weight and develop a secondary anemia under bismuth therapy. Rarely the patient may have the so called bismuth grippe which is a heavy metal toxemia. These reactions may require the discontinuance of bismuth therapy but are never difficult to control. The most common bad effects of bismuth are the local reactions. All bismuth compounds are slightly painful. Occasionally there will develop a sterile abscess in the muscle or subcutaneous tissues that will need drainage. Arterial emboli seem for some reason to be a little more frequent following bismuth than following mercury. They may be due, of course, to faulty technique but they are sometimes unavoidable with the best of care. Venous emboli are almost always due to poor technique. In some patients, bismuth seems to result in board-like fibrosis of the muscles and subcutaneous tissues at the site of injection. This is only seen after many injections and may be due to the nature of the vehicle used.

### Recapitulation

Bismuth is a very valuable remedy in the treatment of Syphilis. Bismuth should be used routinely in the treatment of all types of Syphilis.

Bismuth should not be used exclusively, particularly in treating early active syphilis; nor has bismuth entirely replaced mercury.

The choice of bismuth compound to use is still a matter of opinion. The oily suspensions are certainly effective and have the advantage of a wider clinical experience than the other compounds.

### BIBLIOGRAPHY

1. Levaditi and Sazerac: Therapeutic Action of Bismuth on Syphilis, Annals de L'Instit. Pasteur. 36: 63-101, Jan. 1922.
2. Klauder: Arch. Dermat. et Syph., 17: 332-350, March, 1928.
3. Curtis, S. H.: J. A. M. A., 95: 1588-1599, Nov. 22, 1930.
4. Cole, et al: Ven. Dis. Inform., 12: 145-157, Arp. 20, 1931.
5. Hanzlik, P. J.: Arch. Dermat. et Syph., 22: Nov., 1930.
6. O'Leary and Brunsting: New Y. State J. Med., 30: 1223-1227, Oct. 15, 1930.
7. Levaditi: Urol. and Cutan. Rev., 35: 581-584, Sept., 1931.
8. Bull Soc. franc. de Derm. et Syph. (Reunion de Strasburg) July, 1930.
9 Levaditi: Am. J. Syph. 14: 156-168, Apr., 1930.
10. Garner and Stokes: M. J. & Rec., 134: 369-371, Oct., 21, 1931.
11. Cole, H. N., New York State J. Med. 30: 638-645, June 1, 1930.
12. Harrison, Col. L. W.: The Treatment of Syphilis, Special Report Series No. 132 Med. Research Council, H. M. Stationery Office, London, 1929.
13. Ibid: Lancet 1: 763-765, Apr. 5. 1930.
14. Wright and Perlman: Am. J. Syph. 14: 169-174, Apr., 1930.
15. Doles: Virginia M. Monthly, 57: 316-321, Aug., 1930.

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# THE TREATMENT OF DIARRHEA IN INFANTS*

T. J. Marshall, M. D.

Paducah.

I will not take up your time with a long review of the causes and symptoms of diarrhea. Needless to state that the age, season, heat, hygiene, sanitation, diet and parenteral infections are all more or less to blame for summer complaint, so-called. The symptoms are as well known, frequent loose watery green stools with straining, etc. followed by mucus and blood in the stools. Later marked dehydration with all its attendant symptoms, such as loss of body weight and skin turgor, acidosis, scanty urine with albumin and casts, small rapid pulse, at times irregular and usually some degree of fever. The patient is at first restless, later coma, and finally convulsions may close the scene if the dehydration is untreated. Vomiting may be a symptom early in the diarrhea and it may occur later as the result of anhydremia.

The severer forms are seen more often in the artificially fed infant who has received unsuitable food mixtures and in those who have suffered from chronic or repeated acute infections. Most cases occur during the last part of the first year, and throughout the second year. The opinion that the second summer is a dangerous period for diarrhea is true because there is often less care in the dietary and the child is beginning to run about and has more opportunities for contamination and infection.

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*Read at the McCracken County Medical Society, September 28, 1932.

In the past years diarrheal diseases have been the cause of almost as many deaths among infants as all the other causes combined. While there has been a marked decrease in mortality, diarrhea continues to occupy first place in the infant mortality reports.

The gastro intestinal secretions of the infant differ in composition from those of older individuals. The gastric juice contains less pepsin-rennin and considerably less hydrochloric acid. There are some of the factors that cause infants to develop diarrhea more readily than older individuals.

The gastric juice of the infant is well adapted to digest human milk, therefore, the disease is seldom seen in breast fed infants, and if diarrhea does develop, the outcome is very much favorable.

Any infection accompanied by fever is apt to lessen the gastric secretions. The same thing may be brought about by exposure to high atmospheric temperature. A badly undernourished infant, from any cause, is likely to have lessened gastric secretions. In such cases the contents of the stomach and upper intestinal tract may not be sufficiently acid to prevent bacterial invasion, even in the breast fed, and as a result organisms which are not normally present in the duodenum and stomach may invade these parts of the gastro intestinal tract.

Cows milk in the stomach tends to form large tough curds and as cows milk has a much higher buffer capacity than human milk, these tough curds act as mechanical irritants and at the same time enmesh and protect any bacteria present from the bactericidal action of the gastric juice.

If the diarrhea is severe or is prolonged, there may result serious damage to the body or even death may take place. Some of the effects on the body are, diminished absorption of food, resulting in partial starvation, loss of water, loss of mineral salts, and toxemia from bacterial invasion. The toxemia resulting from the invasion of bacteria in the upper gastro intestinal tract, such as the colon bacillus which may inhabit and grow in the lower bowel, if present in the upper portion of the intestinal tract may lead to serious disturbances, constitute the severe toxic state seen in which the baby passes from the restless excitable stage to one of apathy with anorexia, dehydration, etc.

Bacteriologic examination of the stools is of value, chiefly in diagnosing the presence of bacillary dysentery, such as the Flexner, Shiga, etc. which I am not attempting to discuss in this paper.

Diarrhea is largely preventable, even with the best of care any infant may have short periods of diarrhea, but if the infant is fed properly and lives under good hygienic conditions, serious or fatal diarrhea should not occur. Breast feeding is one of the best means of prevention. In the artificially fed, the chief essential is the freedom in the milk of harmful bacteria. Boiling the milk renders the milk free of bacteria, and also causes the milk to be more digestible. The object in the modification of milk is to reduce the size of the curds and to neutralize the buffer substance, boiling tends to do this, also dilution aids in this objective. Acidification of the milk, according to Marriott, also reduces the size of the curds and at the same time neutralizes the buffer substance. The addition of carbohydrate is essential in the further modification of the milk. From 1 to 10 to a 1 to 20 addition will meet the nutritional needs. During the warm months a sufficient intake of water is an important factor, as is the avoidance of overheating the body. The undernourished infant is susceptible to diarrhea, therefore the nutrition of the child must be maintained through the means of proper nourishment, hygiene, etc. At the onset of diarrhea it is safer to consider all cases severe and to treat them accordingly, as it is impossible in the beginning to know whether the case will be mild or severe.

### TREATMENT

The general principles as outlined might be taken as follows: The diagnosis and proper treatment of parenteral infections, as acute tonsillitis, otitis, etc. Rest of the gastrointestinal tract, by withholding all food from the stomach for twelve to twenty-four hours, but with water forced unless there is persistant vomiting. The administration of a laxative is often advisable. Next, the feeding of food adapted to the limited digestive capacity. This should be non-irritating, readily digestible, a poor culture media for bacteria and a type which tends to bring about normal chemical conditions to the gastro intestinal tract. The food should have a low fat content as fat tends to delay the emptying time of the stomach. Boiled skimmed milk may answer, also evaporated, dried or acidified milk meets the indications very well. Of these perhaps protein milk at first, followed by Lactic Acid Milk, later some of the dried milks or evaporated milk, then boiled and skimmed milk with the gradual addition of fat. The addition to the milk of carbohydrate is made gradually and cautiously. Some of the Dextrin Malt mixtures are preferred by most clinicians to the other sugars. The carbohydrates are good culture media and it is wise to be cautious in their use. However, this food element, (carbohydrate) is essential. Saccharin may be used to sweeten the formula before it is safe to add carbohydrates.

In older children the same procedure may be used with the addition to the diet of albuminous foods, such as meat broths, egg albumin, gelatine, butter milk, etc. The body fluids must be restored and maintained. The sick infant will not be able to take sufficient fluid per os, so the other routes for the administration of fluids must be used. Physiological saline, intraperitoneal, subcutaneous or intravenous. Glucose 3 to 10% may be added to the fluid for hypodermoclysis and 20% for the intravenous route.

The infant may be maintained and in fact gain weight, and the skin regain a part of its turgor, while the diarrhea improves and the alimentary toxicosis subsides by the use of parenteral administration of fluids alone. Dr. Schick in a paper in a recent number of the Journal of the A. M. A. withholds all forms of food per os and uses the continuous Venoclysis method as advanced by Dr. Hendon of Louisville, until the alimentary toxicosis has subsided. Also, by the administration of nomal salines or Ringer's Solution the mineral balance is restored and maintained.

Finally in the more severe cases, blood transfusion is often a life saver and should not be withheld too long, as this form of treatment quickly supplies materials for the reconstruction of damaged body cells, it improves the circulation and leads to the improvement of the digestion and absorption of food and may have some effect in increasing the infant's resistance. As it may be extremely difficult to enter the infant's vein, the peritoneal cavity may safely be used as a route for the administration of blood.

As to the use of drugs, side from paregoric as needed, stimulants, caffeine, and digitalis as indicated, there is very little about medicinal therapy in the literature.

If all babies could be born of healthy parents, among good hygienic surroundings, be breast fed, protected as far as possible from the acute infectious diseases, have clean wholesome properly prepared food, kept cool during the warm weather months, with an abundance of water and the parents taught to look upon the mildest gastrointestinal upset as if it were the severest, diarrhea as now encountered would be history. After the baby is sick, more lives will be saved if we will recognize and treat parenteral infections promptly, rest the gastrointestinal tract, give food adapted to the limited digestive capacity, restore and maintain fluid balance, restore and maintain mineral balance, blood transfusion when indicated.

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**Vomiting Reflex from Distended Pyloric Pouch**—Goldberg describes experiments in which he noted that reflex vomiting can be induced by distending and isolated pyloric pouch until the pressure within the pouch rises above a certain constant level which can be definitely measured. The afferent side of this reflex arc is entirely through the vagus nerves

# COMPLICATIONS OF LABOR*

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Bowling Green.

In a paper of this length, we can only hope to mention a few of the factors pertaining to the complications of labor. In doing so, I will present for your consideration the opinions of some of the leading obstetricians of the day and will quote statistics bearing on this subject.

## SEPARATION OF THE SYMPHYSIS

Separation of the symphysis pubis is one of the rarest complications of labor. W. L. Ekas points out that separation of the symphysis without further injury to the pelvis seldom occurs. Rupture of the symphysis pubis without further injury to the pelvis is not serious and healing is usually satisfactory. As a rule, rupture of the symphysis does not produce a deleterious effect on labor and operative measures are not indicated; subsequent labors may cause a recurrent partial separation, but again not necessarily affecting labor.

## RUPTURE OF THE UTERUS

Rupture of the uterus is one of the rarest and most serious complications with which we have to contend. During the last ten years among 10,800 confinements at the Breslau Woman's Clinic, there were eight cases of rupture of the uterus, both artificial and spontaneous. Two occurred during version and extraction and one after the use of the bag for dilatation in a case of placenta previa. The remaining five were spontaneous ruptures. A. V. Probotner reports five cases observed during the last four years: all were due in his opinion to the use of pituitary preparations. Four of the mothers died in spite of operations. The only mother who was saved had an incomplete rupture, and the treatment in this case was tamponade.

DeLee maintains that the pituitary preparations were not at fault, but the incorrect use of them. He claims that small doses of the preparation, namely 0.5 of a CC should be given at first and this dose may be repeated in a short time if necessary.

## PROLAPSE OF UMBILICAL CORD

During the last twenty-five years among 37,859 cases in the Second Viennese Woman's Clinic, there were 587 cases of prolapse of the cord. According to W. Schiller's investigations, the most important etiological factor was contracted pelvis. According to his views, prolapse of the cord without a cause does not exist, because this condition is only one of other disturbances in labor.

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*Read before the Kentucky State Medical Association, Louisville, October 3, 4, 5. 1932

In the treatment of prolapse of the umbilical cord, reposition plays a very minor role, because other complications are present and these must be overcome, otherwise, the cord will prolapse again. The treatment should consist of terminating labor as rapidly as possible. However, this applies to cases in which the cervix is completely or almost completely dilated. In the presence of an incompletely dilated cervix, the results are much worse for both mother and child. The only certain method of delivery, especially for primiparas, is Caesarean section as it gives excellent results in clean cases. Perhaps we will see less of these complications in the future as the treatment for prevention and cure of rickets is more vigorously carried out.

### Occipto Posterior Position

In 1268 cases on DeLees service, there occurred 212 cases of occipto posterior positions. Mid forceps were used twenty-six times. High forceps were not used in this entire series. Spontaneous labor 123 times. Lower forceps were used 25 times. Manual rotation of the head was accomplished four times. Forceps on the after coming head were used thirty times. DeLee has followed the rule laid down by Piper and himself, of applying the forceps to all version cases and breech extraction occurring in this series. External version was accomplished twice before the onset of labor. Internal podalic version was done thirty times. Caesarean section using the low incision was done seven times.

It is upon these statistics that Vaux is led to believe that a timely internal podalic version in posterior occiput positions is justified when the cervix is fully dilated and membranes not ruptured in preference to watchful waiting or forceps delivery. In this series there was only one fatal intra cranial hemorrhage following version, while in forceps delivery there were four. The chief argument for the wider use of Caesarean section is that it conserves infant life. General statistics, however, fail to show a saving of infant life, although certain institutions are able to record a lower fetal mortality

### Placenta Previa

Among 30,000 cases observed by T. Thiemke, there were 228 cases of placenta previa. Premature labor occurred in 87 cases. In more than one-third of the cases, the child was presented abnormally: there were 146 occipto; 46 transversal; 34 breech and 3 brow presentations. Fourteen mothers died or 6.1%. The chief cause of death was: sepsis, 5, hemorrhage 4: pneumonia, 2. Of the 142 full-term children, 58 or 42 per cent died. Of eighty-nine premature babies, 65 or 73 per cent died. The total fetal death rate was 53.2 per cent.

The treatment in these cases was conservative with delivery through the vagina. In mild cases the bag of water was ruptured. In more severe cases the rubber bag was inserted. The expulsion of the bag was followed by version but the extraction was not performed until the cervix offered absolutely no resistance. This was done only after seeing whether spontaneous expulsion could not take place. In this series there were thirty-one spontaneous deliveries, with a maternal mortality of 3.2 per cent. A bag was used nineteen times with a mortality of 16 per cent. Braxton Hicks version was used forty-two times with a mortality of 2.4 per cent. Internal version was done 32 times with a mortality of 9.4 per cent. There were twenty-nine extractions with a mortality of 3.4. Among twenty-seven abdominal sections 7.4 per cent of the women died.

The following statistics are from the Maternity Hospital of Cleveland, Ohio: From January 1, 1922 to July 1, 1930 there were 34,343 deliveries among which there were 104 cases of placenta previa. Of the 104 cases, forty-seven were complete; 27 were partial; 30 were marginal. Classical Caesarean section was performed seventy-eight times; low cervical twice; podalic version, fifteen times; and forceps, five times; spontaneous delivery, twice, prophylactic blood transfusion was done twenty-three times; maternal deaths, two or 1.92 per cent. Caesarean Section performed early with prophylactic blood transfusion and preoperative fluids in all cases of placenta previa when the cervix is closed, seems to be the method of choice in the interest of the mother as well as the child.

The vaginal method of delivery should be restricted to those cases of lateral and marginal types where the cervix is dilated, and the fetus nonviable and the patient potentially infected.

### Accidental Hemorrhage or Ablatio Placentae

Separation of the placenta according to Holmes is more common than in placenta previa being variously estimated at from 1 in 115 to 1 in 894. The causes may be grouped into those which are predisposing, and those which may be considered as exciting.

The predisposing causes are toxemias, torsion and endometrial diseases. Chronic nephritis and hematogenous infection produce infarcts.

Among the exciting causes may be mentioned direct trauma such as kicks, falls, blows, and violent muscular efforts, such as lifting heavy weights. Ablatio usually occurs in the last weeks of or during the first stage of labor. Usually the first symptom is severe pain in the region of the uterus at the point of separation. This is always attended with some degree of faintness or collapse. In the concealed variety, the blood collects between the placenta and adjacent membranes and uterine wall. In this way, the woman may bleed to an alarming extent before the blood makes its appearance externally. The board-like uterus becomes extremely painful. The pain is constant, which is diagnostic; there is a fall in systolic pressure. the pulse becomes feeble and rapid. Prognosis in ablation is always serious, less so in the apparent variety than when the bleeding is concealed, since frank vaginal bleeding always alarms the woman and her family and prompt medical aid is sought.

The mortality rate, according to available statistics ranges from 2.6 to 66 per cent. In hospitals having a prenatal clinic the mortality rate is materially lower than in those institutions with emergency service only. For example, Greenhill at the Chicago Lying-In Hospital had only three deaths in eighty-two cases. Burgess at the Montreal Maternity Hospital had six deaths in 801. Polak's ratio was 1 to 16. The fetal mortality varies from 60 to 95 per cent chiefly from asphyxia due to interference with the interoplacental circulation.

The chances for both mother and child are better in multiparous births than in primiparus labors. As soon as a diagnosis of ablation is made, treatment must be instituted. What plan of procedure is to be adopted will depend on certain obstetric factors. The parity of the woman, the period of gestation, whether or not she is in labor, the condition and amount of dilatation of the cervix, the amount of blood loss, general condition of the patient and upon the presence or absence of infection.

The conservative plan employed in the management of Polak's cases is as follows: The pain and shock are relieved by hypodermic injection of ¼ or ½ gr. of morphine; the membranes are ruptured and the vagina is packed firmly with gauze, and Beck's abdominal binder, to control further uterine distention, is firmly applied.

If the presenting part is in the pelvis, and there is no bony disproportion, three minim doses of pituitary extract are given hypodermically at twenty minute intervals. If labor is progressing as shown by effacement and dilatation of the cervix, and the descent of the presenting part and the quality of the pulse, the systolic and hemoglobin and red blood cell count readings are maintained: the patient is allowed to deliver spontaneonsly, or the labor is terminated with forceps. The placenta is expressed with the first contraction or, if there is any delay, is removed manually and the uterus is emptied of all its retained coagula.

It was Polak's custom to pack the uterus firmly with iodoform gauze, as continued oozing may change the favorable outcome. With hemorrhage controlled, he gave attention to the acute anemia by posture and, if necessary, by blood transfusion.

### ECLAMPSIA

Eclampsia occurs about 1 in 600 cases of pregnancies, but this varies in different statistics. About 20% of the cases occur before labor: 60 per cent during labor and 20 per cent after delivery. Predisposing causes are primiparity especially in advanced years; excessive nervous irritability, previous diseases of the kidneys or liver, twin pregnancy and contracted pelvis.

In spite of the great amount of work that has been bone upon it, the real cause of the disease is unknown. The theory that is most plausible is that of a toxemia—that some toxin, the source or nature of which we do not know, circulates in the blood which produces necrosis of the liver, and directly or indirectly, degenerative change of the kidneys and also convulsions by direct toxic action on the anterior cerebral cortex.

I shall not mention the various theories advanced by different authors as their diversity of opinion clearly indicates that no definite conclusion as to the cause has yet been accepted. The prognosis of Eclampsia is very grave. According to DeLee's estimate, over 20 per cent of the women afflicted with eclampsia die, and this has hardly been affected by changes in treatment in the last one hundred years. Wyder collected large statistics which showed a general mortality of 20 per cent. Statistics vary from 5.31 per cent to 45. 7 for the mother, and from 3.63 to 42 per cent for the child.

### TREATMENT

At present, there are two plans of treatment practiced—the radical and the conservative. American obstetricians do not practice either plan of treatment routinely, but individualize the cases. The conservative treatment begins by taking 500 to 1000 c. c. of blood from the arm, thereby lowering arterial tention. Some replace the blood with a solution of sodium bicarbonate or glucose or both.

One may then begin Stroganoff's conservative treatment which is as follows: ¼ gr. morphine hypodermically; one hour later 20 to 40 grains of chloral per rectum; two hours later, morphine grains ¼ hypodermically four hours later, 30 grains of chloral per rectum; six hours later 15 to 30 grains of chloral per rectum; seven hours later, 20 grains of chloral per rectum. A light chloroform anesthesia is given with each rectal injection to prevent convulsion, which might result from local irritation.

Stroganoff stresses the importance of a dark and quiet room, careful watching, chloroform for each threatening convulsion and non-operative treatment of labor As a rule **the convulsion will cease. The convulsions,** however, will more than likly recur and usually at the time of labor.

When labor begins the pains are usually strong and delivery is soon effected. In many cases the convulsions cease after the uterus is emptied. When labor has advanced so far that it can be terminated without damage to the mother, delivery should be effected in a manner befitting the condition. If the head is engaged, forceps; if not, version should be chosen.

The proponents of rapid delivery claim that eclampsia is the result of abnormal condition going on in the ovum and by removal of the contents of the uterus, the toxemia is eliminated and the convulsions will usually cease. R. Freund collected 551 cases of eclampsia from the Berlin Charity Hospital which were delivered in 1 hour after the first convulsion with no mortality, and showed that the conservative treatment gave a maternal death rate of 14 per cent and 47 per cent of viable children died. Nearly all statistics prove that the child has a better chance to live by early delivery, but these come from clinics under the management of competent obstetric operators. If Caesarean section is the method chosen in rapid delivery, the children will be saved. If accouchement force is practiced, the fetal rises with maternal mortality to great heights.

The mortality statistics of eclampsia are very unreliable, and can be quoted in favor of both methods of treatment. However, prenatal care of the mother will greatly reduce the frequency of puerperal convulsions.

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**Relationship of Carcinoma of Body of Uterus and of Ovaries.**—Offutt reports that, in a series of 520 cases of adenocarcinoma of the body of the uterus, there was associated carcinoma of the ovary in 11.9 per cent, and in 616 cases of papillary cystadenocarcinoma of the ovary there was associated carcinoma of the body of the uterus in 8.6 per cent. The fallopian tube should be considered as one of the means through which transplantation takes place. Because of the similarity of the adenocarcinomatous cells in the embryologically similar tissues, it is often difficult to determine which carcinoma is primary and which is secondary and whether or not there may originally have been two independent carcinomas. In cases of carcinoma of the ovaries, the possibility of metastasis to the uterine endometrium, even when there is no gross peritoneal evidence of extension of the malignant growth, must be borne in mind. Because of this possibility, hysterectomy at the time of removal of the ovaries must be seriously considered.

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## THE TREATMENT OF INTESTINAL OBSTRUCTION*

G. A. Hendon, M. D.

Louisville.

The mortality of intestinal obstruction still remains at about 50% if based on a cross section of the entire country. This high death rate indicates that there is something wrong with the methods of treatment that are new in vogue. It probably will require a generation of study and effort to reduce this figure. As William Harvey said, "Doctrine once sown strikes deep its root so much doth wont and custom become a second nature," and all men are influenced by antiquity.

The efficacy of treatment of any disease depends more upon the time that it is employed than any other one factor and this applies more to the disease now under consideration than to any other malady. I have often made the statement that there are three ways to reduce the prevailing mortality. One is by early diagnosis and the other two are not of sufficient importance to merit serious consideration. I still maintain that early diagnosis is the most important factor in the treatment of this disease, because each period of its advancement demands a different type and modification of treatment.

I believe it is essential to early recognition to realize that in intestinal obstruction there are three currents to be considered. The fecal, the vascular, and the motor, and as time advances all three are involved in the terminal situation, but it is important if the case is seen early to discriminate as to which one of these three are primarily involved. Whoever understands intestinal obstruction, understands abdominal surgery. The great proportion of delay lies in the desire on the part of the attendant to obtain a complete picture that will comprise all the different symptoms that are listed in the text books on that subject. It is my belief that such a practice is responsible for the excessive mortality as it stands today. My own experience convinces me that abdominal pain, vomiting and constipation are the only symptoms that are required to justify an abdominal incision. These symptoms may announce the existence of either one of the varieties of obstruction above referred to. It will be my duty to present some opinions that are controversial that will furnish ground for debate, and the above statement is in the line of that duty.

The second is that I would absolutely prohibit the administration of a purgative in the presence of severe abdominal pain under any circumstances.

The third is that I would advocate the ad-

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*Read before the Muldraugh Hill Medical Society.

been gently stripped out of the segment ministration of morphine hypodermically in sufficient quantity to relieve the patient of his suffering. In regard to the administration of morphine, we are told that by allaying the pain, that symptoms are disguised and that we may be deluded thereby, into wrong conclusions.

I fail to see the wisdom of this teaching because it is only necessary for us to know that the patient *had pain* and its subsidence in connection with the morphine is sufficient to indicate that it is the morphine and not the removal of the source that has brought about the apparent relief. It is also argued that the patient is thus lulled into a sense of false security and on that account will withhold his consent to an operation. My answer to this argument is that pain should be regarded as a witness and not as an advocate. In favor of the administration of a narcotic, might be urged that the fact that its results are humane, that it sooths the nervous system, puts the patient in a better position to undergo the shock that is inevitable to an operation, reduces the amount of ether necessary for anesthesia, and produces anoci association that is highly desirable. There is no useful purpose to be achieved by permitting the continued suffering of the patient. The establishment of the fact that pain is present, is all that is necessary and that in connection with the absence of bowel movement and the presence of nausea and vomiting will establish the diagnosis far enough to justify opening of the abdomen. In addition to these three symptoms, the stethoscope is of immense value in enabling one to hear the bubbling and explosions of gases in the intestine. Late in the diagnosis, however, after the bowel has become completely paralyzed, this symptom does not exist and the absence of the sound of gaseous disturbances will indicate a terminal condition. I do not believe it is ever wise to list distention, shock, fecal vomiting, feeble pulse, cold surface, as symptoms of obstruction. These should be classified as the signs of impending dissolution. The treatment of intestinal obstruction may be divided into three classes. Preparation for the operation, the operation, and the subsequent postoperative procedure. The preparation should consist of sufficient morphine to relieve pain, plus gastric lavage. This latter is important because a patient with a full stomach will often vomit on the table and aspirate into his lungs sufficient amount of the intestinal contents to cause him to drown in his own secretions.

The well-known factor of diminution of chlorids in the blood and the acidosis resulting from the constant vomiting and rapid process of starvation, should be combated by NaCl intravenously, also the reduced percentage of calcium which accompanies this condition should be promptly treated by administering calcium in the same way. To meet such requirements, the patient as soon as possible, should be given, intravenously, a solution containing the necessary ingredients, namely, water to combat the dehydration, glucose to furnish a nutritive element that is quickly available, sodium chloride and calcium gluconate, per Venoclysis using for that purpose the cannula and apparatus which I have devised and published in the Journal of the A. M. A., October 18, 1931. This solution should be administered at the physiological rate of delivery which is a flow that preserves the ratio between delivery and distribution. This rate seems to be about 200 c. c. per hour for adults. For this purpose, we have employed the following formula. 1000 c. c. of a 1% sodium chlorid solution to which is added 100 grams of anhydrous glucose and 1 gram of calcium gluconate. This solution ought to be begun, if possible, before the patient is placed on the operating table and the flow started at a rate higher than the physiological standard. I would suggest from 300 to 400 c. c. per hour, and the flow continued during the operation and subsequent thereto. After gastric lavage has been performed, the operation can be begun under some appropriate anesthesia. The abdomen is opened below the umbilicus through the right rectus muscle and not more than 5 minutes should be consumed in searching for the site of obstruction. The well-known hernial rings should be first explored by sweeping the finger over their locations. If no hernias are discovered, the next point of search should be directed to the right iliac fossa. Next, the sigmoid region should be examined. If the patient has had a previous operation, the site of that operation should be carefully explored. This can all be done within the time above suggested. While dealing with conditions that are present, it should be remembered that the collapsed portion of the intestine which is below the site of obstruction, is always found in the pelvis and if one wishes to "read" the bowel, the collapsed portion should be the part selected for that purpose and frequently one has, by tracing the collapsed portion of the bowel, arrived at the point of obstruction very quickly, but this is rarely ever necessary if the directions offered above are followed out. If the point of obstruction is not readily located an enterostomy of a distended loop of bowel should be resorted to and the operation discontinued. Enterostomies should be performed in the following manner. A Pezzar catheter is threaded upon a stylette such as urologists use. Two rubber guarded clamps are placed upon the selected loop of bowel about 4 inches apart after the contents have thus included. A small opening is made on the convex surface of the bowel and the catheter introduced. The stylette is then removed and the bulbous end of the catheter expanded within the lumen of the bowel. A pursestring suture of linen can be carried around the catheter and tied, thus holding it in position. The stem of the catheter is then brought through the omentum and through the operative incision at its lowest angle. The clamps are removed from the bowel and the abdomen is closed.

In many incidents, by thus relieving the distension, the strangled bowel has become released and no further surgical procedures are required. When convalescence is established, the catheter can be withdrawn or it can be cut off and allowed to drop into the bowel and pass out in the natural way. While the catheter is in situ it not only fulfills the functions of drainage, but through it one may administer salines if it appears to be prudent to start purgative efforts. However, this is a point that demands careful consideration and it is doubtful in my mind if such an effort is ever to be justified. The intravenous delivery of fluid and nutrition by the method known as Venoclysis should be kept up until convalescence is established and no food of any description should be given until the patient really has sensations of hunger. I regard the appearance of hunger sensations as the first indication that the alimentary tract has recovered sufficiently to successfully support the burden of digestion and assimilation. We have supported life by Venoclysis for as much as 15 days without either food or fliud by the mouth. However, most of the patients thus affected have great thirst and should be allowed to drink water. After the patient has sufficiently advanced along the road of convalescence and has recovered his strength and ability to digest food, the problem of a secondary operation may be assumed.

Now let us go back with these fundamental principles to another phase of the operative steps necessary to take after the abdomen has been opened. In the event that the obstruction is promptly discovered and released, there is one feature that should be considered as prime importance which is that there must be a collapse of the bowel above the point of obstruction and an appreciable current from the distended segment to the flat bowel below the point of obstruction before the purpose of the operation is achieved. If this should occur, immediately one can safely close the abdomen, if not the enterostomy should be done and every effort made to promote the discharge of intestinal contents through the enterostomy tube.

It has recently been shown by Gatch that absorption of toxines after distention occurs takes place through the peritoneum and not through the wall of the intestine. This fact he proved by injecting a distended loop of bowel in the dog, poisonous substances such as nicotin, or even cyanide without any lethal signs, but after the introduction of these poisons, if the bowel is suddenly collapsed, absorption takes place and the animal dies of the poison. Therefore, the toxic nature of the morbid secretion which distend the bowel should be carefully considered. In the event that one is dealing with a gangrenous segment, the loop affected should be drawn out of the abdominal cavity and resected, but no effort should be made at this time to anastomose the severed ends of the bowel but the two ends should be brought out upon the surface of the abdomen where either of two procedures may be accomplished. One procedure is to invert and close the distal segment and place a Paul's tube in the proximal segment to which may be attached a piece of rubber tubing that will drain the intestinal contents into a receptacle beside the bed.

The other is to do a Mickulicz operation as described in the text books. My preference would be to do the Mickulicz operation if the large bowel is involved and to do the Paul's tube operation if the small bowel is involved, but in either event, an enterostomy by the method already described should be done above.

The second operation becomes a matter of time, circumstances and judgment, but we should always start out with the idea of performing a secondary operation. The patient under these circumstances should be sustained by fluid and nutrition administered by Venoclysis.

In the event that the obstruction is due to a tuberculous abscess or a gumma, short circuiting the fecal current by anastomosing a loop of bowel above the obstruction with a loop below, will give temporary and sometime permanent relief. In cases of intussusception as occurs in young children, reduction should first be attempted in the gentlest manner. If gentle manipulations fail, violence should never be resorted to, but the mass should be delivered outside and a short circuiting operation as above described should be employed and the affected bowel removed at a subsequent operation. Resection and anastomosis should never be attempted in one operation. Torsion of the masentary of the sigmoid is the most frequent cause of obstruction in advanced life and should always be dealt with by resection at the primary operation and anastomosis at a later period if gangrene has occurred.

What is generally known as chronic obstruction is in about 90% of the cases due to annula constriction produced by carcinoma in the large bowel and it is a severe rebuke to the medical profession that diagnosis of this condition is rarely made until the obstruction becomes complete and acute symptoms prevail. On this account, the mortality following operation is excessively high. I feel justified in stating that my experience teaches me that a diagnosis of chronic obstruction, which must be incomplete or it would not be chronic, can be safely predicated upon the following symptoms. First, the patient is beyond middle life, has constipation, "intestinal indigestion" and loses weight. That combination in the absence of obvious signs of other disease is conclusive enough to be convincing. If, however, the significance of these early signs are not sufficiently appreciated and the patient is allowed to proceed until complete obstruction takes place, there is little, if any hope of a successful operation.

As an example, I wish to submit the following clinical report. A woman 59 years of age becomes affected with the symptoms above described. She has gas, constipation, weakness, "intestinal indigestion" loss of flesh, during a period of three months. When she applied to me for treatment, recognizing the condition, immediate operation was urged and accepted. When the abdomen was opened, a hard mass was found in the cecum and a resection of the bowel was performed, removing about three inches of the ileum, the cecum and the ascending colon. Immediate side to side anastomosis was done between the ileum and the transverse colon. An enterostomy done by the method which I have previously described was established and the patient for one week was nourished and medicated by Venoclysis. This enabled the alimentary tract to be relieved of its function, thereby, promoting the chances of union between attached segments of bowel. The enterostomy allowed for the escape of gas before reaching the site of the anastomosis. This patient had a stormy convalescence but made a good operative recovery in four weeks. The permanent result cannot be, as yet, determined on account of the brief period, one year, since the operation, but the case illustrates the importance of operating before acute symptoms develop and giving the bowel complete rest during the period required for the union of the divided segments.

In case the patient is not seen until symptoms of acute obstruction prevail, neither resection nor anastomosis should be attempted at the primary operation, but the enterostomy which I have described should be employed until the system has been relieved of the shock and toxines accompanying the complete obstruction by drainage and the patient has been nourished by Venoclysis which is a great aid in eliminating the morbid decomposition that is going on in the alimentary tract. When these conditions have been properly met, a subsequent operation can be performed with safety and resection and anastomosis can be completed at one operation. This plan of attack is equally efficient whether the point of obstruction involves the right or the left half of the colon.

### Post Operative Obstructions

Post operative obstructions are either mechanical or paretic.

The mechanical obstruction may be recognized by the quiescent interval between the time of operation and the development of obstructive symptoms. For example. A patient is operated upon by an abdominal section and pursues a course of ordinary progress for as much or more than forty-eight hours. Symptoms become intensified. Vomiting ensues with increased activity and the pulse rate suddently rises. Such a patient should receive one dose of pituitrin. If there is no abatement of symptoms the abdomen should be immediately opened and the obstruction released. The type of obstruction most usual in conditions of this kind is a projection of omentum becoming attached to the stump of a broad ligament from which an ovary has been removed and acting as a snare in which a loop of bowel has become incarcerated. A recognition of the importance of the quiescent interval above referred to will rarely, if ever, lead one astray.

Paretic post operative obstruction is generally termed ileus and is produced by trauma due to extensive handling of the bowel during the operation or to an abundant and virulent infection, such as results from the perforation of a hollow viscus or contamination due to the rupture of an abscess and soiling of the peritoneal cavity. Ileus can be largely prevented either by doing an enterostomy at the time of the operation or by catheterizing the appendix if there should be one. The latter procedure might be confused with the operation of Wier known as appendicostomy, but it is entirely separate and distinct. The operation is performed as follows: The distal end of the appendix is cut off and a catheter of appropriate dimension carried into the large bowel through the lumen of the appendix. Two linen sutures are passed through the appendix and through the catheter at either extremity of the appendix and tied to hold the appendix in position. The appendix is then brought out through the lower angle of the incision and fastened there by a linen suture through the appendix and through the parietal peritoneum. By this measure one can make the colon serve as an internal hot water bottle and is the most effective way of supplying heat to the internal organs. Through the catheter thus inserted, the entire colon can be filled with water of 120 F. and by clamping the catheter, the water can be confined. This source of heat will sustain the normal temperature during the process of the operation and should be done always when prolonged operative procedures are anticipated. When the patient is placed in bed, the water in the colon can be changed from time to time by removing the clamp and replacing the water in the colon with more water that has been warmed. When there is no longer occasion for artificial heat the catheter can be utilized for the administration of food or such drugs as may be considered appropriate and necessary. At the time the operation is done, the meso-appendix should be ligated and divided. If this is done the appendix will slough away by the end of a week and in that manner destroy the appendix after making it serve a useful purpose. By the employment of this measure, post operative ileus can be reduced to a minimum if employed in conjunction with the other principles of good surgery. In case post operative ileus does become a prevailing factor, the patient should in addition to the fluid administered through the catheter, receive the benefits of Venoclysis and have extended to him the usual courtesies that are due to invalidism.

## BOOK REVIEWS

MENTAL DEFICIENCY DUE TO BIRTH INJURIES. By Edgar A. Doll, Ph. D., Director of Research, The Training School at Vineland; Winthrop M. Phelps, M. D., Professor of Orthopedic Surgery, Yale University School of Medicine; Consultant on Birth Injuries, The Training School at Vineland. Ruth Taylor Melcher, M. A., Research Assistant, The Training School at Vineland. The MacMillan Company, Publishers, New York. Price, $4.50.

Among the many hazards of child-bearing is the danger of serious injury to the nervous system of the new-born child. This risk, which is especially serious among first-born children, is present in an apparently normal birth as well as in those where natural labor is unusually severe or prolonged and in those which require instrumental delivery.

The present study is chiefly concerned with those children who, because of birth trauma, suffer both motor paralyses and mental retardation.

THE SPUTUM; ITS EXAMINATION AND CLINICAL SIGNIFICANCE. By Randall Clifford, M. D., Associate in Medicine: Peter Bent Brigham Hospital; Assistant in Medicine, Harvard Medical School; Formerly Associate Physician and Director of Pulmonary Clinic, Massachusetts General Hospital. The MacMillan Company, Publishers, New York. Price, $4.00.

This treatise has been written as a practical guide for physicians and medical students in the examination and clinical interpretation of sputum with the hope that it will stimulate interest in the subject and dispel the current idea that such an examination is a complicated piece of bacteriological research, impractical for the average physician. Equipped with a microscope, a few stains, and a knowledge of technic of a few good staining methods, the physician will find this book an invaluable aid in the diagnosis of diseases of the bronchi and lungs.

THE COLON, RECTUM AND ANUS: By Fred W. Rankin, B. A., M. A., M. D., F. A. C. S., Division of Surgery, The Mayo Clinic, Associate Professor of Surgery, The Mayo Foundation; J. Arnold Bargen, B. S., M. D., M. S., in Medicine, F. A.C. P., Division of Medicine, The Mayo Clinic, Assistant Professor of Medicine, The Mayo Foundation; and Louis A. Buie, B. A., M. D., F. A. C. S., Section on Proctology, The Mayo Clinic, Associate Professor of Protology, The Mayo Foundation. 846 pages with 435 illustrations. Philadelphia and London: W. B. Saunders Company, 1932. Cloth $9.50 net.

This volume covers the entire subject from both the surgical and medical standpoint. The opening chapters tell how to arrive at an accurate diagnosis with a full chapter devoted to history-taking and examination. Chronic ulcerative colitis with detailed instructions for the concentrated serum treatment is thoroughly discussed. There are very definite discussions of carcinoma, its diagnosis and treatment, of anal pruritus, with a treatment that has brought relief in 92 per cent of cases treated, of hemorrhoids and the injection treatment, as well as the technic of hemorrhoidectomy. Over 100 pages are devoted to operative procedures which are fully illustrated.

It is a book that is essential to the library of both the surgeon and physician.

A DOCTOR OF THE 1870's AND 1880's—William Allen Pusey, Chicago. Charles C. Thomas, Baltimore, Maryland, Publisher. Price $3.00.

Dr. William Allen Pusey's description of his father's life as a pioneer practitioner in Elizabethtown, Kentucky is a book of especial interest to the Kentucky Medical profession. Dr. Robert Pusey was a pupil of the great Samuel D. Gross, a founder of the Hardin County Medical Society which was the predecessor of the vigorous present day Muldraugh Hill Society and the father of one of Kentucky's most illustrious physicians.

The story of Dr. Pusey's years of practice is an interesting one and well told. The early introduction of gelatin capsuls by Park-Davis, the description of his successful use of chloroform, (he never had a fatality), his relations with his patients and the families in his district, his hardships on the road, are all related as impersonally as a son has ever written of a father. The usual sentimental treatment of the old time family physician is happily absent. Instead the account of the life of a country doctor, who never pretended to be anything else, who devoted his time to his practice and who worked steadily until his death from typhoid fever, is a record of some historical value and of great personal appeal.

The book is heartily recommended to laymen as well as to members of the medical profession.

PAPERS ON SURGERY AND OTHER SUBJECTS—By George Tully Vaughan, M. D., L. L. D., F. A. C. S., Professor Chief of Surgery, Georgetown University. Published by W. F. Robert Company, Washington, D. C. 1932.

Dr. Vaughan has collected the principal articles chiefly on Surgery, which he has written during the past fifty years and which to some extent show its evolution and development. Among the more interesting items are those on suture of the heart; transplantation of the left knee joint; a series of articles on volvulus of the small intestine; gunshot wounds of the abdomen, and vivesection; and a number of short addresses on medical subjects.

Dr. Vaughan is a former Assistant Surgeon General of the United States Public Health Service and an operator of courage and originality. His articles have appeared from time to time in the chief medical journals of the United States. He was one of the founders of the American College of Surgeons.

CHILDREN'S TONSILS IN OR OUT, A CRITICAL STUDY OF THE END RESULTS OF TONSILLECTOMY. By Albert D. Kaiser, M. D., Associate Professor of Pediatrics, University of Rochester Medical School, Chief Pediatrician Rochester General Hospital, Pediatrician Rochester Dental Dispensary. Illustrated. J. B. Lippincott, Philadelphia, London, Montreal, Publishers. Price $5.00.

The author has gone a great deal into the study of all phases of tonsils and adenoids and been able to do a complete follow-up record of over 5000 children operated upon in the Rochester Clinic for a period of ten years.

The result of this survey is given and amply illustrated by graphs and charts. It is a valuable book for the health officer, as well as the specialist.

RADIOLOGIC MAXIMS — By Harold Swanberg, B. Sc., M. D., F. A. C. P., Editor of The Radiological Review, Quincy, Illinois. With a foreword by Henry Schmitz, A. M., M. D., L. L. D., F. A. C. S., Professor of Gynecology and Head of the Department, Loyola University School of Medicine. Cloth. Price, $1.50, Pages 126. Quincy, Illinois; Radiological Review Publishing Company, 1932.

This book is unique in that no similar book has previously been published and it covers the achievements in one of the most rapidly growing and interesting fields in medicine, Radiology. Although the book is on one of the medical specialties, it has been especially written to appeal to the practicing physician and surgeon.

The profession must realize that Radiology has bestowed to it a lavish gift and the Radiologist next to the Surgeon, is the foremost exponent of the anatomy, physiology and pathology of the living organism, which so profoundly differentiates the practice of medicine of the present from that of the past. Physicians should familarize themselves with the wise excerpts given in this book for they are the ones who first should recognize the need for radiology in their patients.

HOOKWORM INFECTION—By Clayton Lane, M. D,. London, England. Lieut-Colonel Indian Medical Service. Formerly in charge of the Darjeeling Ankylostome Inquiry, and Co-opted Member of the Sanitary Board Bengal, and of its Hookworm Disease Committee. With foreword by Charles Wardell Stiles, Smithsonian Institute, Washington, D. C. Humphery Milford, Oxford University Press, London, Edinburgh, Glasgow, New York.

Dr. Stiles in the foreword says that few men live or even have lived who have had such wide practical and theoretical training and experience with hookworm disease as the auther and when Col. Lane writes or speaks on this infection the whole scientific world reads and listens with marked attention, profound respect and expectant benefit. This valuable volume gives a clear concise scientific evaluation of the entire hook worm problem including the general anatomy and biology, infection in man, various technics of examination, latest scientific treatment, prevention and disinfection.

The county health officers in our rural sections are neglecting this important problem and the perusal or careful study of this splendid book would give them a new zeal and vision to conquer this "Killer of Americans."

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NEXT MEETING MURRAY

## COUNTY SOCIETY REPORTS

**Grant:** The Grant County Medical Society met at the office of the Health Department, Williamstown, November 16, 1932 with the following members present: J. J. Marshall, J. W. Abernathy, N. H. Ellis, H. F. Mann, J. L. Price, C. D. O Hara, A. D. Blaine and C. A. Eckler. The minutes of last meeting were read and approved. Communications from University were read and filed away. We now entered in to the discussion of case reports. Dr. J. J. Marshall made some interesting case reports. One of Whooping Cough in a man 76 years of age, which ran a six weeks cours. He also reported a case of a lady 61 years of age who had called a physician for the first time in her life, a case of Ascites. The doctor tapped her abdomen and withdrew fourteen quarts of bloody serum. The cause was unknown but he was suspicious of malignancy. The woman is now up and about for two months with no return of the dropsy. Drs. Price, Blaine, Abernathy, Marshall and Eckler reported many interesting cases of appendicitis, in all stages of the disease as found by operation.

Dr. O'Hara reported a case of Carcinoma of the Prostate Gland in a man 67 years of age who had a diseased heart, lobar pneumonia and two or three hemorrhages from the lungs, neuritis and high blood pressure. This all occurred in a stout able bodied man of a few years ago. These case reports become the interesting part of our program.

The subject for the evening was "Gunshot Wounds," and in Dr. George's absence, Dr. Blaine opened the discussion with some interesting cases and the remedies that he used for same. He was followed by Dr. O'Hara, who talked on Bullet Wounds. He condemns the practice for probing for bullets. If the bullet is in a place where it causes no trouble, let it alone. Treat the wound antiseptically. In shotgun wounds where there is much laceration of tissue, bones destroyed, remove the damaged tissue, if a main arterial supply is cut off, amputation may be necessary.

Dr. Price reported a gunshot wound of the knee, where the bullet was lodged beneath the patella or kneecap. The patient could throw the bullet out from under the bone at will. After three years duration he threw it out to show the doctor and he removed it. This was a .22 rifle bullet. Dr. Price also reported a gunshot wound of the forearm where he had given a preventative dose of tetanus antitoxin, and patient developed tetanus anyway and died in five days.

Dr. Marshall reported an interesting case of an Aneurism of the Carotid Artery caused by gunshot wound in neck. The boy was operated for aneurism and made an uneventful recovery.

This was one of our best meetings and was greatly enjoyed by all present. Subject for next time, "Fractures of the Arm and Their Treatments." Discussion opened by Dr. C. D. O'Hara.

At this time we adjourned to meet the third Wednesday in December at the usual time.

C. A. ECKLER, Secretary.

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**Franklin:** The Franklin County Medical Society met at the Capital Hotel, Frankfort, October 13, 1932, with the president, Dr. Heilman, presiding. The following members were present: Drs. Minish, Heilman, Coblin, Coleman, Stewart, Patterson, Ginn, Jackson, Martin, Travis, Snyder.

There being no special paper for the meeting, Dr. Minish made reports on the State meeting which was also attended by Drs. Roemele, Stewart and Snyder. Case report—Repair of recto-vaginal fistula. Diagnosis of facial presentation by Drs. Minish, Heilman, Coblin, Coleman and Martin.

No other business, the meeting adjourned to the Hotel Dining Room for lunch.

C. E. YOUMANS, Secretary.

---

**Jefferson:** The following is the program for the January meetings of the Jefferson County Medical Society.

**January 9th—Case Reports**

A Case of Blastomycosis of the Face and Arms, Winston U. Rutledge, M. D.

Ruptured Appendix with Complications, Chas. M. Edelen, M. D.

**Essay**

Removal of the Prostate through the Urethra, Illustrated by Motion Pictures, Owsley Grant, M. D.

Discussion to be opened by Drs. Claude G. Hoffman and Henry J. Farbach.

The program for December 5th was postponed to January 9th on account of the presence in the city of Doctor Leroy Sante of St. Louis who spoke on Tuberculosis before the Jefferson County Medical Society.

**January 23rd**

Clinical Pathological Conference.

GUY AUD, President,
ULY H. SMITH, Secretary.

---

**Franklin:** The regular monthly meeting of the Franklin County Medical Society was held Thursday, December 1st, 1932, in the Capital Hotel.

Dr. Demaree, acting as president in the absence of Dr. Heilman, called the meeting to order. Minutes of the last meeting were read and approved. The following doctors were present: Snyder, Jackson, Minish, Coleman, Travis, Adams, Patterson, Demaree, Leaser and Youmans.

Dr. Snyder, who had charge of the program, read a most interesting paper on "Headaches," giving the various forms and causes. This paper was enjoyed by all and was generously discussed.

Under new business, came the election of officers for the year 1933 as follows: president, Dr. A. M. Jackson; vice-president, Dr. W. S. Snyder; secretary-treasurer, Dr. C. E. Youmans. Delegate, Dr. F. M. Travis; alternate-delegate, Dr. A. M. Lyon. Censors: Dr. C. T. Coleman, three years; Dr. L. T. Minish, two years; Dr. John Patterson, one year. Dr. L. D. Adams of Smithland, now Medical Director at The State Reformatory, was welcomed a member of the Society.

Dr. L. T. Minish offered the following Resolution which was unanimously approved by the Society

RESOLVED: "We, the members of the Franklin County Medical Society, hereby endorse the work of Mrs. Z. J. Montgomery, who has established in her large and commodious home a retreat for convalescents. We know that Mrs. Montgomery has a most intimate knowledge of diatetics and is well prepared to care for convalescent patients."

The Society adjourned to the Hotel Dining Room for lunch.

C. E. YOUMANS, Secretary.

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**Franklin:** The regular monthly meeting of the Franklin County Medical Society was held in the Capital Hotel, Thursday, November 3, 1932 with the president, Dr. Heilman, presiding. The following members were present: Drs. Coleman, Jackson, Snyder, Ginn, Heilman, Roemele, Minish, Patterson, Darnell, Travis and Youmans.

Dr. Roemele had charge of the program and related a very unusual and interesting clinical case of his which was discussed by a good many of the members present. Notice of the Fifth District Medical Society to be held in Carrollton, November 10th was read to the Society.

After this discussion, the meeting adjourned to the Hotel Dining Room for lunch.

C. E. YOUMANS, Secretary.

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**Hancock:** The following were elected officers of the Hancock County Medical Society:

C. M. Heavrin, President, V. C. Moseley, Vice-President, F. M. Griffin, Secretary-Treasurer.

Regular meetings will be held the first Monday in each month.

F. M. GRIFFIN, Secretary.

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## NEWS ITEMS

Dr. Frank Pirkey announces the removal of his offices to 362 Francis Building. Practice limited to Ophthalmology.

---

Dr. Frank Ritter announces the removal of his offices to Suite 818-819 Brown Building. General surgery. Louisville.

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Editorial and Business Offices, 519 Tenth Street. Subscription Price, $5.00; Single Copy, 50 cents.
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BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

**Published Under the Auspices of the Council**

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## OUR ANNUAL MEETING

The Annual Meeting of the Kentucky State Medical Association will be held at the State Normal School at Murray, September 11-14th. This is the delightful season of the year in Southern Kentucky Those who recall the cool comfort of the campus at our meetings at Richmond, Bowling Green and Lexington will welcome the opportunity of meeting in one of our newest and best State institutions.

Doctor Martion, President-elect, is beginning early to formulate the plans for the meeting. He has appointed Doctors G. A. Hendon and Alice Pickett on the Program Committee and Doctor B. B. Keys has been selected on the Committee on Arrangements by the Calloway County Medical Society. Those who desire to present papers at the session should notify Doctor Hendon at Louisville immediately.

The President and faculty of the Murray State Normal School have asked us to urge that every doctor and his Auxiliary be present throughout the meeting. Our annual sessions have assumed definitely the proportions of a post-graduate course. The low cost of the accommodations, which will be provided at Murray, will permit our members to attend at less cost than if they remained at home. We feel that this is particularly important this year when financial readjustments are confronting everybody.

The League of Christian Physicians will hold a meeting on Sunday evening, September 10, preceding the session. All of the churches at Murray have agreed to unite in this assembly. To those who participated in the remarkable meeting in Louisville last year, at which Doctor Kelly was the speaker, this Sunday meeting will be looked forward to with especial interest.

Murray is one of the most delightful towns in Kentucky. It is easily accessible by automobile and the new bridges crossing the Cumberland and Tennessee Rivers will be of interest to all the physicians who cross them. Calloway County has a splendid County Medical Society and active Auxiliary, two hospitals and an effective full-time county health department. All aboard for Murray!

## JEFFERSON COUNTY MEDICAL SOCIETY

At its annual session on January 19, the Jefferson County Medical Society celebrated its six hundred and thirty-third meeting, Doctor I. T. Fugate, one of Louisville's most distinguished roentgenologists, was elected President for the next year.

Doctor Fugate asks us to extend to the profession of the State a cordial invitation to attend its meetings at the City Hospital at any time they can arrange to be in Louisville. The advance programs are published in the JOURNAL each month. More than one hundred Louisville physicians attend each of these sessions and the formal programs and discussions are always of interest and value.

## THE KENTUCKY WHITE HOUSE CONFERENCE

The December issue of the Bulletin of School Service of the College of Education of the University of Kentucky publishes the full proceedings of the recent Kentucky White House Conference. The JOURNAL has a few extra copies of these proceedings and will be glad to send them to physicians especially interested. The report of the Committee on Medical Service, of which Doctor Barbour is Chairman, is particularly interesting, as are the sections on education and social work. The latter is especially timely now as many of our physicians are co-operating with the Kentucky Relief Commission in their program for the care of the unemployed.

## BIBLIOGRAPHIES

Acting under instructions from the House of Delegates, bibliographies will not hereafter be published in the JOURNAL. The Index Medicus and the Catalog of the Surgeon General's Library, both available in all well-appointed medical libraries and in a great many general libraries, contain such complete bibliographies that we feel it is unnecessary to pay the extra expense and take up the additional space with this material.

## SCIENTIFIC EDITORIAL

### EARLY OXYGEN THERAPY IN PNEUMONIA

Oxygen therapy has now come into very general use in the treatment of pneumonia at one stage or another during the course of the disease, but unfortunately in a very large percentage of cases it is not used until the patients become desperately ill. A good many of these are aided through the crisis and recover, but others are then beyond any aid that can be given them. They are so overwhelmed by the toxemia and the badly damaged circulation that nothing can save them.

From the statistics now available oxygen therapy will reduce the mortality of pneumonia in general ten per cent. This is quite enormous when we consider that the mortality of pneumonia has always been high in spite of various efforts to lower it, and with oxygen therapy ten cases may be saved out of every hundred that are now dying.

The management of every case of pneumonia should be undertaken with the knowledge that there is a chance of mortality varying from twenty per cent to ninety-eight per cent against it, of course depending upon the type. However, the least severe type has only one chance out of five of recovery if all conditions are favorable. Few people would object to the small cost of oxygen therapy if they knew the true facts and had them explained to them.

So often the case seems apparently mild in the beginning, and the physician who has the financial condition of his patient at heart feels that he is going to do well and it is needless to put him to the expense of oxygen therapy, professional nursing and so forth, but who can foresee what is going to happen to an individual case a few days later in such a treacherous disease as pneumonia? His circulation may begin to fail at any time with all of its serious consequences. The consolidation may begin to spread to other parts of the lungs. A blood stream infection may develop. The lung may not resolve with the consequences of delayed resolution. All physicians have experienced the disastrous sudden changes for the worse many times. He then begins oxygen therapy, secures nurses and does everything possible for his patient but it is often too late.

If he treats the case in the beginning with the idea in view that he cannot afford to take any chance with any patient, whatever the outcome may be, he has the satisfaction of knowing that he has done his best and that the family of the patient or his friends will never be able to say that a certain treatment should have been used earlier, or that the doctor did not recognize the seriousness of the case until it was too late, or that if the patient had had oxygen he would have lived, all such criticisms being none too infrequent.

The tendency all over the country today is to give every pneumonia patient the benefit of oxygen therapy just as soon as the diagnosis is made and to continue it until he has passed the crisis. It is beyond any experimental stage and its use will increase in direct ratio with the increasing experience of physicians all over the country with its beneficial results.

R. HAYES DAVIS,
Louisville.

## ORIGINAL ARTICLES

### THE DIFFERENTIAL DIAGNOSIS AND HANDLING OF THE ACUTE ABDOMEN*

L. RAY ELLARS, M. D.

Louisville.

My subject, The Differential Diagnosis and Handling of the Acute Abdomen, I will try to put over without any frills or bunk, but just as the average doctor sees the average case at the bedside, where all he has available are the ordinary instruments Almighty Nature endowed him with.

Now, the most common surgical condition in the entire abdomen is appendicitis, and this should always be either ruled in or ruled out, regardless of the location of the pain; even if the latter should be in the left upper quadrant of the abdomen. Strange to say, this disease commences and pursues such a regular sequel of events that it is indeed strange that the diagnosis of this condition is so often overlooked. The train of symptoms is pain, nausea, vomiting, elevation of temperature, point tenderness and leukocytosis, with a negative urine.

We must bear in mind that the pain is always first, followed a short time afterwards by nausea and then vomiting. The pain, in 90 per cent of the cases, starts in the upper abdomen, later localizing in the right lower quadrant of the abdomen. Shortly after the onset of the pain, the patient is nauseated, and soon, thereafter, vomits. But it is exceedingly rare for a patient to vomit over two or three times within the first 24 hours of this condition. During this time, if we are alert, we will be able to demonstrate temperature; and my advise, in all doubtful cases, is to use rectal temperature rather than per orum, as I believe it is much more accurate. Most of these cases will show a temperature of from one-half to two degrees. The point tenderness will always be found over the seat of the trouble, namely in the right lower quadrant of the abdomen; and is an infallible sign. In other words, it would be impossible to have pathology of the appendix to any marked degree without there being tenderness, and, of course, the accompanying rigidity. We must bear in mind with reference to this tenderness that if the appendix is reduced, this tenderness will not be so marked, or else will be in the right flank.

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*Read before the Fifth District Medical Society, Carrollton, December 5, 1932.

Now, gentlemen, contrast this condition with an acute intestinal obstruction, where the condition again begins with pain, which is colicky in character, and much more severe than in the average case of appendicitis; and where, if you will pardon my French, the patient pukes instead of vomits. He not only pukes once to three times in the first 24 hours, but as the condition becomes worse, the patient pukes, rests, pukes again and keeps this up. If we are alert again, we will recognize that these cases never have temperature and that instead of being moderately distended, as in the average case of appendicitis, they will be bloated like a "cow that had died from eating buck-eyes." Here, I want to emphasize that I don't mean maybe, as I was born and reared on a farm and know what such a cow looks like. In intestinal obstruction (I am speaking solely of the mechanical type) if one places a stethoscope over the abdomen, he will hear at irregular intervals a sound simulating a ball rolling down the floor in a bowling alley; where, as in the case of acute appendicitis, he hears nothing. If one will do a rectal examination in such a case, the examining finger will seem to roam about in an empty space in the ampulae of the rectum. There will be no area of point tenderness in this condition, but more of a general tenderness over the entire abdomen. An enema in such a condition will fail to give results, unless it would be for the first injection. In these cases, too, if one flips a cold, wet towel against the abdomen, it will cause increased peristalsis, and a great increase in the paroxysms of pain. I want to emphasize here, for the purpose of diagnosis, that intestinal obstruction is divided into two main divisions, namely the dynamic and adynamic types. In the dynamic type, of which all attacks of mechanical obstruction are examples, there is nothing wrong with the mechanical movements of the bowel, only to the extent that there is a mechanical interference with this movement. Now in the adynamic type, of which an overwhelming peritonitis, or gun-shot wound of the spinal cord are examples, there is an interference with the nerve supply of the bowel. Now one must realize here the importance of the differential diagnosis between these two types. In the gun-shot wound of the spinal cord, for instance, which would cause a paralysis of the intestinal tract, if one will listen with the stethoscope over the abdomen, he will hear nothing; the importance of which is that it would be futile to operate in this type of condition. The same thing would be more or less true in an intestinal obstruction of the adynamic type, due to an overwhelming peritonitis. In this condition, too, there would be no audible sounds with the stethoscope; but here the patient would show other signs of peritonitis, particularly fever, which I want to emphasize again and again is never present in the purely mechanical type of intestinal obstruction.

The diagnosis of the next acute surgical condition of the abdomen, for our consideration, would be a ruptured duodenal or gastric ulcer. Here one would be able to elicit the history, in the vast majority of cases, of previous stomach distress after eating, ranging from a few minutes to a few hours, depending more or less upon the location of the ulcer. You would also note, in this particular case, that the pain is much more severe than one would find in a case of acute appendicitis, or an acute intestinal obstruction. The temperature here throws very little light on the condition, as it may or may not be present, depending upon the time at which the patient is seen after the rupture. But, here, gentlemen, I want to let you in on a little secret. When an intestinal viscus ruptures, it immediately allows the escape of gas from this viscus into the general peritoneal cavity. When the patient lies on his back, this gas, of course, will always collect against the posterior surface of the anterior abdominal wall; and in thus collecting it gets between the liver proper and the anterior abdominal wall, eliminating all liver dullness to percussion. I have made a diagnosis of ruptured duodenal ulcer, many times, on the above findings, and in my opinion it is almost an infallible sign.

The next condition that one must bear in mind is the acute gall-bladder. These patients are usually not constipated. They usually give the history of more or less indigestion, and especially eructations of gas after eating. The majority of these will be able to enumerate different acute attacks of abdominal pain in their past. The history of typhoid fever here is of importance, as a great many of these cases will have had typhoid fever. Strange to say, many doctors rely for this diagnosis on jaundice, which should never be relied upon, as only 14 per cent of all gall-stone cases show this manifestation; which, of course, is explained anatomically by the fact that in gall-stone cases, the stone must either cause obstruction to the common duct, by entering same, or must cause pressure on the latter by contiguity of structure pressure through the cystic duct, or by intense inflammation of the common duct, causing blockage of that structure. In the acute gall-bladder the maximum point of tenderness will be at the junction of the mid-clavicular line, at its junction with the 9th rib. These cases invariably have some temperature, and they also have a relatively high leukocyte count compared to appendicitis; but to laboratory work I pay little attention. A high blood count in any acute abdomen means overwhelming pathology, in the average person, with normal resistance, or slight pathology with a very high resistance. Conversely a low count means little pathology, or overwhelming pathology with no resistance. So I again emphasize, blood counts mean very little to me.

Now the next condition, for our consideration, would be an acute salpingitis. Here the pain would be, in the vast majority of cases, bilateral and low down in the pelvis. There would usually be a history of rather profuse vaginal discharge, with perhaps burning on urination, etc., a few days to a few weeks or months prior to this attack. Naturally the history as to who the patient is, the age, surroundings, etc., would more or less enter into this diagnosis. This type of patient is usually sterile, or has probably only had one child. When one examines such a case, per vagina, he will note that moving the cervix from side to side, causes a marked increase in the pain, as, of course, movement of the uterus naturally also moves the fallopian tubes. In the majority of cases one is able to actually palpate these tubes.

The next and last condition is that of ectopic pregnancy. The history here usually follows a very definite course. As you will remember, an ectopic pregnancy usually ruptures between the 5th and 12th weeks. In a great per cent of cases, there will be a history of having missed at least one menstrual period. If this history is not obtained, the history will be that the patient, in all probability, was a few days too early or a few days too late in her last period, and when this period came on it was very abnormal and had probably lasted for many days. Most of these cases are erroneously diagnosed as an abortion or miscarriage, as they are usually bleeding at the time one first sees them. Some times there will be a history of the patient having fainted after some exertion, and in this type of case one sees the patient usually in more or less shock, with all the symptoms of internal hemorrhage. Here again the patient would usually be found menstruating, which is the main keynote in keeping this condition in mind. If one examines such a case, vaginally, he will usually note that there is an increase in the pulsation of the uterine artery on the affected side, compared to the unaffected side. If one gently moves the cervix the patient still usually complains of pain on the affected side. Many times one is able to elicit some of the probable signs of pregnancy, such as softening of the cervix, morning sickness, change in the color of the nipples, etc. Here again I would emphasize the point that in many of these cases, if one observes the bare abdomen with the sunlight shining on it at an oblique angle, there will be noted a rather bluish discoloration around the umbilicus. This sign, when present, means a great deal in the diagnosis, but when absent means nothing.

Now I would further state that I have purposely omitted many other acute abdominal conditions, such as twisted ovarian cyst, which gives the identical symptoms of appendicitis, unless one is able to actually feel the cyst. Another one omitted is that of mesenteric thrombosis, which gives the same symptoms with the added exception that the patient occasionally passes blood per rectum. These cases are in the vast majority of instances overlooked and are rather infrequent. Inasmuch as they all call for opening the abdomen, the diagnosis cuts little ice. Different diseases of the kidneys have been omitted, as strictly speaking they are outside the abdomen. However, when surgically affected they are usually distinguished by abnormal findings in the urine and by intense tenderness to fist percussion over the kidney on the affected side.

Now as to the handling of the acute abdomen, we will take up in rotation as we have diagnosed these cases. Appendicitis cases should be operated on as soon as possible after the diagnosis has been made. Of course, we must realize here that occasionally the case is seen too late for an early operation, and too early for a late operation. Although these types are extremely hard to differentiate, I will not go into details about this, as this is the duty of the surgeon rather than of the general practitioner. When a case is seen early all that is necessary is the removal of the appendix, under any form of anesthesia, with a tight closure of the abdominal wound afterwards. In my opinion it cuts little figure as to the technique, which varies according to the surgeon, except that I do believe the stump of appendix should never be ligated. The main thing is to get the appendix out. In the moderately advanced and far advanced cases of appendicitis, I mean the ones, now, that have ruptured with a localized abscess or a diffuse peritonitis, the treatment is altogether different. All of these cases, unless some unusual contraindication to the contrary, should be operated under spinal anesthesia. If the case is a walled-off abscess, this abscess should be opened and no attempt made, whatsoever, to remove the appendix, if its removal would entail the handling or traumatizing of the intestines to any great extent. These cases should all be operated upon through a rather large incision, so that this appendiceal abscess may be completely walled off from the general abdominal cavity, excluding the case, however, where just a small incision could be made through the anterior abdominal wall into the heart of this localized appendiceal abscess for simple drainage. It is always my custom in these cases to insert an appropriate length of glass tubing, with a diameter of about the size of ones little finger and perforated at the distal extremity by numerous small holes. A cigarette drain is placed along side this glass tube. After the patient has reached his bed, the nurse is instructed to aspirate this glass tube, with a small rubber tube attached to a glass syringe, every fifteen minutes. This glass tube is removed at the end of 24 to 36 hours, but the cigarette drain is allowed to remain from 6 days to 6 weeks, if necessary. In other words, this cigarette drain must always be allowed to remain until the patient is out of danger. I believe this is a mistake that is often made after a very successful operation; in other words, the removal of the cigarette drain too early with the consequent lighting up of a new peritonitis from the breaking up of adhesions around the drain.

Now, in the cases of general peritonitis, the treatment is practically the same, except that this glass tube is placed in the most dependent portion of the pelvis and three cigarette drains used in addition, one being placed along side the left mesenteric attachment, one at the appendiceal base, one along the right side of the ascending colon. In this type of case, the glass tube is handled as in the appendiceal abscess, being removed at the end of 24 to 36 hours. In these cases, too, I am a firm believer in the intravenous use of large quantities of fluid; and I believe that to Dr. George Hendon of Louisville, Kentucky, is due a great deal of credit in the development of what he terms "Venoclysis," which consists in the administration of a saline or glucose solution, by the drip method, into the veins, the solutions being kept warm in thermos bottles. We have used this method repeatedly, and have been able to keep a patient alive for 20 days without the intake of a particle of food or a drop of water by mouth; at the same time being able to give this patient this nourishing food through the vein at the rate of 30 to 40 drops a minute, depending upon the age of the patient and whether or not his kidneys are able to tolerate the amount of glucose given, as evidenced by the reaction of his urine to Fehling's solution. Of course, gentlemen, I am taking it for granted that you all realize the importance of keeping the intestinal tract perfectly quiet, by the withholding of food and water in these cases, and by the use of a rather extreme Fowler's position which assists nature in keeping the infection in the lower part of the pelvis or abdomen. If at the time of operating this extreme case, it is noted that there is undue distention of the abdomen we always make it a rule to do an enterostomy in the lower few feet of the ileum, using for this purpose a perforated catheter placed in the lumen of the bowel and brought out through a separate stab wound. This gives vent to the gas as it is formed in the small bowel; also it is a means of discharging varying amounts of the bowel contents which in such conditions are extremely toxic. By this method of treatment in cases of general peritonitis, I want to say without egotism or bragging, that in the past six years we have lost only three cases of appendicitis, taking them on just as they came.

Now, as to the treatment of acute intestinal obstruction, I want to say that it is imperative that these cases be operated upon early, as the mortality increases approximately two per cent an hour from the time of the onset. The operation here, consists in making a midline incision, and releasing the part that is causing the acute obstruction.If the part has not been obstructed too long, all that will be necessary is from nothing to perhaps the application of a few hot towels to the obstructed loop of gut. If the condition is more advanced it may perhaps call for resection of this portion of the gut. If the case is extreme, it will call for resection of the affected gut, which should be done by various methods, depending upon the location of the obstruction and the part of the bowel involved. Here, again, an enterostomy is in order, and venoclysis will be imperative; but in these cases, of course, the venoclysis should consist of the administration of normal saline or hypertonic saline solution, so as to decrease the alkalinity which is present in all such cases. If the patient is in extremus, the only thing that can be done is to do an enterostomy above the obstruction, leaving the obstruction to be dealt with at a later date, depending upon the patient's condition.

The treatment of the adynamic type of intestinal obstruction depends upon relieving the condition which has caused the obstructing ileus, as appropriate measures for peritonitis, injuries to the spinal cord, etc.

In the treatment of a ruptured gastric or duodenal ulcer, this treatment, too, varies according to the time at which the case is seen. If seen early, and it is a gastric ulcer, if possible the ulcer should be excised and the wound sutured. In the case of a duodenal ulcer the ulcer should be patched, if possible, and then a gastro-enterostomy performed. If the case is seen late and has a lot of food products in the general abdominal cavity, the ulcer should be patched, if possible, and then the abdominal cavity gently washed out with normal saline solution, and a glass tube and other appropriate drains placed through a stab wound in the pelvis, and then the case treated along the lines of a general peritonitis case.

In the case of an acute gall-bladder, it is always wise to try expectant treatment first, such as hot or cold applications to the abdomen, plenty of morphine with rest, and the judicial use of enemas, as necessary. After the case quiets down and has been afebrile for a few days to a few weeks, the gall-bladder should be removed. Occasionally one meets with a case that will fail to quiet down, in which case, simple drainage of the gall-bladder has to be done.

The same treatment holds true in the case of salpingitis. Conservative measures should always be attempted first, bearing in mind the value of the Fowler's position. If the case fails to quiet down after the lapse of a few weeks, in many cases we are able to make a puncture in the posterior cul de sac, draining the pus from the pelvis in this fashion, and later operating on the patient, from above, when she is in good physicial condition.

In the cases of ectopic pregnancy the thing of main importance is to remember that these cases should be treated expectantly and with blood transfusions before the operation, if they are in a serious condition. These cases will practically all build up to the point where an operation is practically without danger, by such treatment, and should always be operated upon during this upbuilding period, and under local anesthesia. The affected tube and blood clots should be removed, and no attempt, whatever, made to remove the liquid part remaining. These cases should be sewed up absolutely tight and never drained, as the liquid part of the blood remaining will be reabsorbed into the general circulation and will be of great benefit to the patient.

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# ACUTE GALL BLADDER DISEASE*

W. H. Smith, M. D.

Danville.

The gall bladder, like the other organs of the body, is subject to acute as well as chronic diseases.

Being intimately attached to the under surface of the liver, and in close proximity to the duodenum, stomach and pancreas, it can be easily understood how any severe infection or inflammation of this organ may be of very serious consequences.

In a state of moderate distention, it holds about fifty or sixty c. c. of bile, its walls are very elastic, and it can be distended under pressure to hold from 200 to 250 c. c.

The fact that the gall bladder is pear shaped and tapers to a small cystic duct at the end where its main blood supply enters, is of extreme importance when in a state of inflammation, especially if a stone happens to be jammed tight in this narrow neck.

The acute conditions of the gall bladder are classed as acute and subacute, cholecystitis, empyema and gangrene.

In the acute and subacute stages, the gall bladder shows active inflammatory reaction, the walls being injected, edematous and infiltrated with leucocytes; the streptococcus seems to be the most common offending organism, and in over ninety per cent, stones are present.

The infection is probably a blood stream infection in most cases, and the gall bladder is no doubt already damaged to some extent, so that it is susceptible to infection when the invading organism gains entrance.

This acute infection subsides after about two weeks, leaving the gall bladder in a more damaged condition than before.

This gall bladder may become functionally almost normal again, but probably never becomes normal, anatomically and physiologically.

This acute infection may become aggravated and progress to the stage of suppuration, forming an acute empyema of the gall bladder, or the nutrition and blood supply may be so interfered with as to cause a gangrenous condition. This is especially liable to occur when a stone is impacted in the neck or the duct, thereby, from pressure and swelling, blocking the cystic artery and vein.

## SYMPTOMS

Symptoms may develop suddenly, with more or less pain and tenderness over the gall bladder. The first symptom may be an attack of gall stone colic, but the soreness and tenderness of the gall bladder continues after the acute colic subsides; the temperature may be very moderate, or even absent at first, but later comes on and is apt to continue until the inflammation subsides in about two weeks, if the case runs a favorable course; chills are present in some cases; the leucocyte count is usually around twelve to fifteen thousand or higher.

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*Read before the Kentucky State Medical Association at Louisville, October 3-6, 1932.

As a rule, the symptoms are not as severe in many instances as the serious nature of the condition would warrant.

When suppuration occurs, the symptoms are much more aggravated; chills, higher fever, pain and tenderness more pronounced. There may be symptoms of a local peritonitis, which may become general.

### Diagnosis

Local pain and tenderness in the region of the gall bladder. The pain is not as intense as in gall stone colic, but since stones are present in about seventy-five per cent of the cases, real gall stone colic may complicate the condition, thereby making the diagnosis difficult at first.

An acutely inflamed appendix, high up under the liver, and an acute pyelitis on the right side, may simulate an acute cholecystitis in the early stages.

### Complications

Aside from the liability of the condition to become progressively worse and become suppurative or gangrenous and perforate, the condition may be complicated by an acute pancreatitis, or appendicitis, or infection of the urinary tract. The spread of acute pericholecystitis to the intestines may cause paralytic obstruction.

### Treatment

According to R. H. Miller, when acute infection of the gall bladder is treated conservatively, there are three possibilities: First, subsidence of the infection; second, perforation with formation of local abscess; third, perforation, with the development of general peritonitis: he questions whether the ability to predict the outcome is sufficient to warrant delay of operation. He also states that in a series of two hundred consecutive cases, there was no walling off in from one-fourth to one-half of the cases, showing the danger of spreading infection in case of perforation.

Considering the serious possibilities of this condition, if allowed to progress, the treatment is essentially surgical.

Graham and Miller have both shown that early operation gives a lower mortality and fewer complications.

Cases with persistent fever, tenderness and spasm, and especially cases with severe pain, which is not easily controlled, should be operated upon without delay.

The question occurs, whether the gall bladder should be drained or removed.

If the patient's condition is not too bad and there is no obstruction of the common duct and no jaundice, cholecystectomy is to be preferred, because if a diseased gall bladder is left, it is very apt to cause more trouble at some future time.

### DISCUSSION

**Walter I. Hume**, Louisville: Mr. President and Gentlemen: It is with pleasure that I arise to discuss this paper and to compliment the author, first of all, because of long acquaintance I know of the hard work and hard study back of what Dr. Smith puts into his papers, and second, because of my personal interest in the subject and its very great importance.

Dr. Smith's paper is characteristically brief and to the point, although he covers a broad territory in this subject. It seems that Dr. Smith has made it a rule all of his life to say much less than he knows about a subject and to perform much better than he promises, always. On such a broad subject he has left us little to criticize, if anything, but a few comments may be in order.

First I should like to call attention, I think it is noteworthy, that acute gall bladder disease is comparatively rare. In 848 cases at Barnes' Hospital, 6 per cent were graded as acute. Chronic infections of the gall bladder, on the other hand, are very common. Mentzner, at the Mayo Clinc, (quoted by Graham) in 612 postmortems marked as pathological 66 per cent of the gall bladders in the series, while only 8 per cent of those 612 had had primary diagnoses of gall bladder trouble. In the same clinic, in over 49,000 new cases 5 per cent had complained of symptoms referable to the gall bladder. Thus it would seem that gall bladder disease, pathological changes in the gall bladder, are very common, but on the whole that acute conditions of the gall bladder are comparatively rare.

Surely surgery in acute gall bladder conditions will be a small portion of the average surgeon's work. The cases are none the less important.

The second thing that I should like to say in discussing this paper is that the diagnosis is not always easy. In the course of typhoid fever there may occur acute cholecystitis, even with perforation; following certain acute infections as tonsillitis, for example, or influenza, acute cholecystitis may arise and the clinical picture may not at all be clear. It may occur in young children. It may mimic fairly closely slow, partly protected perforations in the duodenum or stomach. A Riedel's lobe may lead to error in diagnosis. Lead colic, the abdominal crises in tabes dorsalis, right-sided pneumonia, sometimes will make this diagnosis rather difficult, and it seems to me that a serious error may be made occasionally in failure to differentiate serious cardiac disease from disease in the upper right quadrant. Coronary sclerosis and angina pectoris may give almost all the symptoms of acute cholecystitis, and error in either direction may be adding irreparable damage to your already seriously ill patient. As I say, this error, it seems to me, may be made in either direction: acute cholecystic disease may be mistaken for the cardiac condition, or vice versa.

A few words as to treatment. This question of cholecystectomy versus cholecystostomy comes up again and again in the discussion of gall bladder surgery. While I have just a minute left I would like to say that I believe that in the hands of the best surgeons and under most ideal conditions there yet remain clear-cut indications for simple drainage of the gall bladder, even if this must be made and the patient frankly told at the outset that you are planning a two-stage procedure. Such has been my practice for quite a long time. The cases in which this indication seems to me perfectly plain are those, first of all, who are very old and those who have degenerative changes of hearts or livers; empyema of the T. B. cases coming very late and desperately ill when they come to the table; those showing jaundice, and those where pericholecystic abscess perhaps was found on opening the patient, or where massive adhesions make a considerable dissection necessary to enucleate the gall bladder. In some of these situations certainly you should have the courage to say: I will not take this one out, not just now anyway, no matter if in some quarters the idea seems to be that your technic or your ability as an operator is questioned when you fail to take out a gall bladder. That idea undoubtedly is unsound.

I would like to say that certain indications for simple drainage under local anesthesia, to be followed perhaps by cholecystectomy later, should be recognized, and that is my practice, though, primary cholecystectomy also has its definite indications.

**I. J. Hoover**, Owensboro: Mr. Chairman and Gentlemen of the Kentucky State Medical Association: I feel somewhat embarrassed to come before you and try to discuss this paper after the discussion you have just had. I think that Dr. Smith has given us a very timely paper, very brief, and quite a thorough paper. We realize that in trying to discuss this paper or in writing on this subject we have a big subject before us. When we read the literature and what various writers have to say about cholecystitis, we realize that the problem is not yet settled.

As to the function of the gall bladder, we read one article which states there is a certain function that the gall bladder has to perform; then we read another article and find that theory is exploded. Thus it seems to me that we are not quite sure yet about what is the function of the gall bladder, and until this problem has been settled the treatment, of course, is going to be a little indefinite.

It seems to me from my study of the subject that the chief function of the gall bladder is concentration of the bile, together with the action it has on the digestion. We know when we get a diseased gall bladder, that the diseased gall bladder absorbs bile salts very readily; and too we know it does not absorb the lipoid substance in the bile as we would like for it to do. In this way if we have an infected nucleus in the gall bladder we very likely have the formation of stones.

I thought the essayist probably would say something about the subject of drainage by the old tube, but it was not mentioned. I have yet to see any real benefit that has been derived from tube drainage other than for diagnostic purposes. We are at a loss to know just how this diseased condition comes about in the gall bladder. One article that I read on it said in about 30 per cent of the stones you find bacteria in the stones themselves, and that only about 15 per cent of the bile contained bacteria, and then when you take the mucous membrane of the gall bladder and submit that to a bacteriological test, you find that only about 49 per cent of this mucous membrane of the gall bladder contains bacteria, so that gives us quite a little margin in which we can find no bacterial invasion to cause this infection. So we don't know just exactly how all of our gall bladders become infected.

As to the treatment of these infections, as one of the gentlemen who preceded me stated we see very few cases of acute cholecystitis, or we recognize very few acute cholecystitis, because by the time we get perfectly settled on the diagnosis and decide that it is cholecystitis, it is at least subacute or chronic.

As to the removal of the gall bladder or drainage, the best line of procedure is removal. I was just looking over a report from the Mayo Clinic that said they had followed up the cases operated in 1908, 1909 and 1910, a period of about twenty years having passed, and they seem to think that the best results they got were from cholecystectomy, with drainage of the common duct. They did not mean to state that all these cases should have the duct drained, but if we have a hepatitis or a thickened condition of the duct or dilatation of the duct, certainly they believe that the common duct should be drained.

I shall stop as there are other gentlemen here who are going to discuss this paper, because every surgeon should have something to say about cholecystitis.

**Leon L. Solomon**, Louisville: I address myself to this subject from the standpoint of the internist, and I look back over a period of years, in which the profession has seen fit to change its viewpoint from that of surgical drainage of the gall bladder to that of gall bladder removal.

I would have you understand that though I am not surgeon, and speak wholly as physician, I am convinced that too many gall bladders have been removed in latter years. Reflecting on the period when David Yandell, W. O. Roberts, Turner Anderson, Vance, Cartledge, Bullitt, Louis Frank, and others did gall bladder drainages,—as I see some of their former patients, I am lead to believe the function, the gall bladder performs, is larger than that which modern-day estimate seems to attach to it. This viscus is more than a reservoir. Bile, stored up in the gall bladder, even for a brief period of hours, by its mere warehousing, likely develops properties not apparent in the freshly made secretion. I have long since thought as much and have therefore been unwilling to see my patients robbed unnecessarily of an organ, which is repeatedly sacrificed, when it might have been saved.

All of us recall a period when it was common to remove ovaries and tubes indiscriminately, the unsophisticated woman not aware of what would happen when she was unsexed. Today, there is a conservatism, general throughout the world, which would save at least a portion, be it ever so small, of ovary or tube, in order that vitalizing hormones may thereby be made available throughout the later sex period in the life cycle of the female.

And may I add another word? What about the method of treatment a few years ago considered worth while? I refer to medical drainage of the gall bladder—so-called nonsurgical drainage. My experience with this procedure does not justify the belief that a great amount of permanent good may be expected from it.

And now a word of caution to the surgeon: I am convinced that surgical drainage of the gall bladder, or removal of the organ, without consideration to the cleaning up of infections is of little avail. In the mouth the teeth, the tonsils, the digestive tube, in the sinuses and elsewhere, hidden infections should be sought out and removed, lest there be recurrence of disease in the bile passages even after surgery has been done.

One of the vital shortcomings in the management of Cholangitis, Cholecystitis and Cholelithiasis has been our indifference to the so-called focal infections playing the etiological role.

**W. H. Smith,** (in closing): In these acute gall bladders I believe it is true that very few of them are recognized, they are so mild, but the majority of our chronic gall-bladders are the result of acute infection, undoubtedly. The majority of them, though, do not progress to pus and gangrene like some of the acute gall bladders.

In acute gall bladder infection sometimes the symptoms are very mild, and you can have an acute infection of the gall bladder without any fever at all at times, and without any rise of the leukocyte count. The only symptom you can depend on absolutely is local tenderness, and that is always present. I think that is the only symptom you can absolutely depend upon.

I agree with Dr. Hume when he says that all these gall bladders should not be removed, but I believe if the patient's condition warrant it, it is much better to remove them than it is to drain them, because you will have future trouble.

# UNILATERAL BLINDNESS RESULT OF BLOW ON HEAD*

ADOLPH O. PFINGST, M. D.

Louisville.

This report represents a class of cases which are seen occasionally by those of us doing eye work, though, fortunately, they are not common. I speak of injuries about the optic foramen resulting in immediate blindness.

The patient, a young ball player, was struck by a baseball on the frontal bone of the left side, resulting in almost immediate loss of vision in the left eye. I did not see the patient until some six or seven weeks after the injury. At that time his left optic nerve was atrophic and he was practically blind as he was only able to see movements of the hand at close range. There was no other pathology. His right eye was normal and had perfect vision.

It is believed in cases of this kind that either from pressure of a fragment of fractured bone at the optic foramen upon the optic nerve, or from a tearing of the optic nerve, immediate loss of vision or a high degree of amblyopia ensues. Seen soon after the examination these cases reveal no fundus changes. The ultimate outcome is atrophy of the optic nerve which usually occurs in three to five weeks associated with permanent blindness.

I have been in the hope of encountering a case of this kind soon after receipt of the injury so that the case could be subjected to surgical treatment with the view of exposing the optic foramen and lifting depressed bone, thus relieving the pressure upon the optic nerve and probably preventing atrophy and coincident blindness. I believe such procedure, if carried out early enough, would probably save the sight of the injured eye.

These cases present no serious problem aside from the loss of vision.

## DISCUSSION

**S. G. Dabney:** Such cases as Dr. Pfingst describes are not uncommon and are not always attended by serious symptoms. I recall one case of a man who was struck on the temple by a golf ball resulting in a rupture of the foramen; otherwise the injury appeared to be very trivial. A member of this Society, Dr. Sherrill, was the first man that I can recall having suggested operation in a case of this kind. One thing I have wondered about is how long after the injury does atrophy of the optic nerve take place. In most cases it is probably several weeks. I do not recall a case in which atrophy manifested itself in less than four weeks.

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*Read before the Medico-Chirurgical Society, Louisville.

These cases are always interesting and I am glad to know that efforts at immediate surgical relief have met with success.

**John W. Price:** The thought occurred to me as Dr. Pfingst was reporting his case that if anything is to be done in a case of this kind with any hope of success, it would have to be within six or eight hours after the injury, and the earlier the better. I recall a case of fracture of the spine, the patient having been "jack-knifed" under an automobile, in which there was complete paralysis due to pressure from a broken dorsal vertebra. I was in my office when I received a telephone message to come to the City Hospital and due to the fact that this patient received practically immediate attention, he made a complete recovery. I looked up the literature on the subject at that time and was impressed by the fact that if there had been a delay of as much as six to twelve hours in operating for the relief of the pressure upon the nerve, it would have been fruitless so far as permanent results were concerned.

**Jesse H. Simpson:** I recall the first case of this kind that I ever saw, in which the injury was sustained by a fall from a street car. The interesting part of the discussion to me is the question of results to be obtained from immediate operation. We must remember that there is a difference in the effects of pressure upon a sensory nerve and pressure upon a motor nerve. In the latter case, operation a considerable length of time after the injury may produce satisfactory results but where a sensory nerve is involved this is not true.

**J. Garland Sherrill:** Referring to Dr. Dabney's remarks, I reported to this society the case of a young woman who had sustained a fracture of the skull with paralysis of one side of the face, and the question arose as to whether this was the result of pressure from a fragment of bone upon the nerve or whether it was due to hemorrhage. We decided in favor of the former but deemed operative interference unwise, as we were trying to get her over the injury. She made a complete recovery. The question of operation was a very important one in this case. The patient was a young woman and we did not wish to scar her face, although it would have been justified had it been necessary to save her from blindness.

**A. O. Pfingst,** (in closing): Most of the points of interest in connection with this case have been touched upon in the discussion.

The patient in the case reported still had sufficient vision to see movements of the hands on the temporal side when he came under my observation. Although I have not seen a great many of these cases, none has come under my observation in which there was total blindness immediately following the injury, although in some there has been a very high degree of amblyopia which gradually lead to total blindness. This patient, according to his statement, was just about as blind at the time of the accident or soon after it as he is now. There was not a complete atrophy of the nerve when first examined.

## RELATIVE VALUE AND DANGERS OF SPINAL AND INHALATION ANESTHESIAS*

Uly H. Smith, M. D.

Louisville.

In comparing the merits of Spinal Anesthesia with those of Inhalant Anesthesia it must be remembered that there are several rather widely used drugs in the latter group, either of which can be contrasted with the others, while the drugs used in the former group differ more in their respective names than in toxicity and physical properties.

Ether is undoubtedly the safest in the inhalant group, even when administered by a novice; while Chloroform is probably the most dangerous of the group, being less irritating to the bronchial and lung mucous membranes, but decidedly more toxic. The popular gases used in combination with oxygen are nitrous-oxide and ethylene. Nitro-oxygen is probably the less offensive, but does not give the muscular relaxation to be obtained with the use of ethylene-oxygen. Ethyl chloride and gaseous mixtures, such as Somnoform, probably have places in anesthetic induction and in short-lived anesthesia. Every drug in the inhalant group with exception of nitrous-oxide carries with it the distinct potential danger of inflammability. Because of time limitation it will be impossible to consider these drugs individually. I shall refer to them under the general term "Inhalant Anesthetics."

The methods of administering inhalant anesthetics are too well known to take time to describe, however, I think a few remarks touching on the technique of administering Spinal Anesthesia would not be amiss since complications and failures are due to faulty technique. There has been so much written recently concerning Spinal Anesthesia, techniques of administration, limitations, dangers and complications, one must reiterate when one goes beyond the pale of personal experience.

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*Read before the Kentucky State Medical Association at Louisville, October 3-6, 1932.

Large caliber needles with long bevels should not be used as they traumatize the dura by cutting an unnecessarily large slit, permitting the prolonged escape of spinal fluid, and they may lacerate a dural vein, which may cause an admixture of blood spinal fluid and anesthetic solution. These factors, I believe, are responsible for the prolonged headaches and incomplete anesthesia reported by some surgeons. In using a 22 gauge, short beveled needle, and keeping below the last dorsal vertebra and stopping as soon as the dura is punctured, we have seen no complications, such as permanent anesthesia, neuritis and backaches. The technique is a fault, I believe, in such instances, and not the method of anesthesia.

Opinions vary as to the dangers of anesthesia; this variation is unquestionably due to the type of drug used, the technique of administration, the limited numbers, the volumes of cases in different series, the types of operations attempted, and physical conditions of patients. It must be remembered, too, that some surgeons are prone to give an opinion adverse to a certain type of operation, to a certain drug or to a certain type of anesthesia, because of a disastrous experience, when in reality, such opinions may be worthless if the experiments have been limited. Both antagonists and protagonists of a drug or method must guard against unfairness and over enthusiasm.

We have but to review the lucid reports of such outstanding proponents of spinal anesthesia as Babcock, Sise, Pitkin, Labet, Koster and Stout, to realize that spinal anesthesia has placed a class of patients on the operability list, who heretofore have been considered hopeless risks for general anesthesia. Deaths are going to be met with, regardless of the type of anesthesia used.

What assurance have we that any given case is going to survive a relatively safe operation? Unexpected mortalities are the ones which cause us to go back and check up for some overlooked physical factors, which we sometimes see at autopsies and which are unquestionably the cause of death. It is regretable that in view of this, the causes of deaths are sometimes attributed to a method of anesthesia which has proven so valuable to the surgeon, and of so much benefit to the patient.

Labat claims to have had no deaths since he began using the method in 1916. He, however, limits the application of spinal anesthesia to operations below the diaphragm, and states that the method is absolutely safe when all of the details of technique are scrupulously observed. Marbury's resume of the comparison of spinal and inhalation anesthesia, using ether, the safest, as a basis, says: "It is difficult to judge the comparative safety of the spinal and inhalation anesthesia. Deaths from ether have been variously given as one in 15,000, to one in 500, and this is considered the safest of inhalation anesthetics. These figures are usually computed from the immediate mortality, but take little account of the late, as for instance from pneumonia, shock, pulmonary conditions or embolism. Deaths from spinal, on the other hand, usually occur during the first twenty minutes after its administration. As long as spinal anesthesia is reserved for the 'exceptionally bad risks' mortality will continue to be high. The favor or disfavor with which it is looked upon largely accounts for the wide variance in the reported mortality, from one in 50 to one in 17,000 administrations."

Tendler has tabulated 326,910 cases in which spinal anesthesia was used with 80 deaths. This tabulation embraces a large variety of techniques and drugs used. Included are a series of 6,200 cases reported in 1926 by Jonesco; a series by McCormack of 5,000; a series by Gossett and Mounod of 2,000; a series by Case of 11,000; a series by Bainbridge of 1,065; and Labat's series of 1,000 with no deaths.

Tendler says in commenting on this table, "Including all of the cases in the series, we find a mortality rate of one in 4,086." In reviewing these cases critically, the greater number were in cases where approaching death was plainly evident, and death would have been inevitable, no matter what anesthesia had been induced. In but nine or ten cases in the entire reported series, were the circumstances such that we could attribute the deaths to the intra-spinal administrations.

It is difficult to tabulate with precision, the values and dangers of the two types of anesthesia. The contraindications, it may be said, to the two types of anesthesia almost parallel each other.

The values of Spinal Anesthesia are:

1. There is no irritation to bronchial and lung mucous membranes, and consequently fewer pulmonary complications.

2. Complete muscular relaxation is obtained, requiring less manipulation of viscera.

3. There is less post-operative nausea and fewer gas pains.

4. Dehydration is less, as fluids may be given during and immediately after operation.

5. Maintenance of cooperation between patient and surgeon.

6. It probably offers a safer anesthesia for hypertensive heart disease cases.

7. Patients are grateful, especially if they

have previously had disagreeable after effects from inhalant anesthetics.

The dangers of Spinal Anesthesia are:

1. Operations above the diaphragm.
2. Extremely low blood pressure.
3. Brain and spinal cord pathology.
4. Skin infections about site of spinal puncture.
5. Psychic attitude of patients who object to being conscious while operation is in progress.

The values of Inhalant Anesthesia are:

1. In operations above the diaphram.
2. Unconsciousness for patients who demand it.
3. Extremely low blood pressure.

The dangers of Inhalant Anesthesia are:

1. Possible pulmonary complications.
2. Changes in blood chemistry with toxicity.
3. Metabolic disturbances.
4. Dehydration.

From the foregoing, it can be seen that there are definite advantages and disadvantages for both types of Anesthesia. The selection of either type should be made with due deliberation, and where there is no particular choice to be made the decision should be left with the patient.

BIBLIOGRAPHIES

Labat, G.: Elimination of Dangers of Spinal Anesthesia. Am. J. Surg. 5: 625, 1923.

Marbury, W. B.: Spinal Anesthesia. Southern M. J. 23: 1016, Nov. 1930.

Tendler, M. J.: Spinal Anesthesia. Memphis M. J. 6: 143, 1929.

## DISCUSSION

**John W. Heim,** Louisville: Spinal anesthesia is not new; it was given years ago and practically abandoned. It is now in another wave, and therefore it is timely to compare spinal with inhalation anesthesia.

In 1901, Dr. Sherrill read a paper and gave a report of a summary of cases at this Association, the first report on spinal anesthesia ever given in Kentucky.

The value of an anesthetic depends on its safety, efficiency and degree of comfort to the patient. In the inhalation group, ether is probably the safest, especially on the table. It is not so pleasant to take and is therefore not so comfortable to the patient unless it is preceded by one of the gases, which is the proper way to administer ether. Nitrous oxide is safe on the table if it is not pushed too deeply. If we try to get too great relaxation with nitrous-oxide and push it too deeply, therein lies the danger. It is not as efficient as ether or as ethylene. Ethylene relaxes the patient better. If you use novocaine block with nitrous oxide, it is probably the safest, especially postoperatively. There are no after-effects from nitrous oxide.

Ethylene is too explosive to use unless the operating room is equipped to give it, and I have never seen one that was so equipped. Ethylene is not quite as pleasant to take as nitrous oxide.

Spinal anesthesia is very efficient, especially from the viewpoint of the surgeon. It gives great relaxation, is a fine anesthetic from the surgeon's viewpoint, except when the patient retches and vomits, and quite a large number of them do. It is comfortable to some patients; many patients prefer it because they don't have to go to sleep. Lots of them object to it and are very uncomfortable on the table, and some few of them have pain, especially when you pull on the peritoneum or viscera.

Any agent or any drug which you have to give all in one dose is more dangerous than one that can be given in small doses. Spinal anesthesia, of course, is given all in one dose and we don't know what patient may have a contraindication for spinal, I mean are supersusceptible to spinal. In giving an inhalation anethetic, the anesthetist with any experience finds this out before the patient is asleep and can tell how susceptible the patient is to the drug.

As Dr. Smith says, the mortality statistics for spinal range anywhere from one to 400 to one to 4,000. Babcock of Detroit wrote to a number of large hospitals in the East and gave the statistics as one death in 400 of those that replied; I have forgotten the number that replied.

Postoperatively, of course, we know that lots of pulmonary complications have been attributed to ether. Dr. Judd of Mayo Clinic and Dr. Lahey of the Lahey Clinic, Seitz of the Lahey Clinic, and Byrd, found that there were as many lung complications following spinal anesthesia as ether.

In the Pennsylvania General Hospital, for one year all patients in one wing were given spinal anesthesia, and it was found that there were more lung complications than the year preceding when all the patients on that wing were given ether.

We know there are a number of cases reported of paralysis following spinal anesthesia. There is a case reported in the last issue of Surgery and Gynecology in which the patient had paralysis of the right leg continuing six months after spinal. A good many of these cases have been reported; also paralysis of the motor oculi, which seems to clear up more quickly than paralysis of the extremities.

I don't think an autopsy is complete following a spinal anesthetic unless the cord is examined. A good many autopsies have been done and no cause for death found by good pathologists, but they didn't examine the cord. Davis, Haver, Griffin and Emmett report in the American Journal for the last issue, I think experiments on dogs; they took a number of large dogs and gave them different doses of various spinal anesthetics that are used today, and killed them by bleeding in one day, two days, and three days up to thirty and ninety days. They found meningeal inflammation in all of them, degenerative changes in the fiber tracts, and cell changes I know nothing about. After thirty and ninety days they found fibrotic scarring in the meninges and adhesions of the meninges. They also found in the early cases, hematomas.

Contraindications. Given among the contraindications are hemorrhage, shock, very high or very low blood pressure. A number of doctors have recommended it especially in high blood pressure. High blood pressure is usually a compensatory thing and it is necessary to push the blood through the sclerosed arterioles, and if the blood pressure is lowered suddenly, or very much, as spinal does—it lowers the blood pressure in practically all cases—the patient is likely to die of anemia of the vital centers. A patient must be able to ventilate or oxygenate well if spinal is to be used, because they may die of anemia of the vital centers because there is not enough oxygen carried to them because of the low blood pressure and slow and hampered respiration. In those patients if the spinal gets high up (and we have no way of knowing just how high it is going because it is mixed with the spinal fluid) there is a movement in the spinal fluid caused by pulsation in the brain and respiration, and an agitation, so to speak, of the spinal fluid, which helps to mix the anesthetic with the spinal fluid.

To my mind other contraindications to spinal are large tumors or intestinal obstruction or pregnancy, if you are going to do a cesarean, or anything that hampers the excursion on the diaphragm, because as I said before, if the spinal gets high up the intercostal muscles are paralyzed and the only respiration is diaphragmatic respiration.

Getting back to the comfort of the patient under different anesthetics, to make them more comfortable barbitals and morphine are used and are necessary in most cases, but they lower blood pressure and depress the respiration, and the spinal also lowers the blood pressure and depresses the respiration. Of course, it is more dangerous when used with barbiturics or morphine.

I called up a few men in Louisville whom I knew were giving spinal, and I got statistics of all kinds. Some have had a few hundred cases with no deaths; one had 3 in 500; one had 2 in 200, one had one in 80.

Comparing the two anesthetics, spinal anesthesia offers no degree of safety postoperatively and less degree of safety on the table.

**W. Hamilton Long, Louisville:** I have enjoyed Dr. Smith's paper very much. There is no one in this community, neighborhood or state better qualified to write such a paper from long experience than Dr. Smith. Those of us who have been in anesthesia for several years, on a large scale or exclusively, cannot help but form rather definite opinions and probably get a little hidebound in opinions.

Inhalation agents are so well known that I think I will pass them over briefly and devote a couple of minutes to spinal anesthesia, with just this on the inhalation method, that ether is doubtless the safest anesthetic in the hands of the comparative novice or tyro. It has been called nearly fool-proof.

The newer gas, ethylene, has a higher record of safety and efficiency, far more so, especially of efficiency, than has nitrous oxide. It is so much smoother in its action that were it not for the fire and explosion hazard of ethylene I feel confident it would render its rival, nitrous oxide, obsolete in a very short time. However, the hazard referred to has retarded its progress somewhat. Nevertheless, it is extensively used in some sections of the country.

I want to say just one thing about statistics on anesthesia mortality. I don't think any of them are worth a snap. When you see such great variations as that between Baldwin of Columbus who claims that the mortality of nitrous oxide is one per cent, and a man like McKesson who claims it is one in 50,000, and you get such tremendous variations in your statistics from different sources as to render them absolutely worthless, you finally come to that conclusion. I am personally convinced that many, many anesthesia deaths never find their way into the literature as such to be classified in anybody's tables of mortality that are made up.

The history of spinal anesthesia from its inception has been one of successive periods of enthusiastic use and disuse, a series of waves of exacerbations and remissions, so to speak. We have just seen a renaissance which I think was at its peak a couple of years ago, and now I sense in my reading a marked recession under way of the popularity of spinal anesthesia. The renaissance was largely stimulated by the widely broadcast writings of Pitkin, Koster and a few other men, and I think that they oversold the technic to the country in this way; they gave the impression in their writings that it was almost entirely safe and recommended it for routine use. That meant that in every small city and town and hospital everywhere, men who were without experience in the thing, following their technic—any man who could acquire the skill and deftness necessary to tap the spinal canal with a needle, was indiscriminately using spinal anesthesia. There have been unexpected deaths in favorable cases, and deaths entirely unlooked for, deaths which happened so suddenly that absolutely nothing could be done. I have had first-hand, eyewitness reports made to me of two or three such deaths in the city, although I have not personally seen any.

It has been used in a great many bad risk cases where death was not such a surprise as in those apparently favorable cases, where it was used and proved fatal.

I think it has a definite field; I think we should keep it in mind, but I believe in selective anesthesia. I believe in fitting the anesthetic in each individual case to the case, and I certainly would not advocate anything like the routine use of spinal anesthesia, which, if I read Pitkin and one or two of the enthusiasts correctly, I get almost as a recommendation.

As to pulmonary complications, a resume of cases reported in the American Medical Journal a few weeks ago reported four times as many pulmonary sequelae following spinal as following inhalation anesthesia. That probably will bear out to some extent the atelectatic theory of postoperative pneumonia and will help to relieve ether of a great deal of the opprobrium which it has not deserved. I do think there is such a thing as an ether pneumonia, but I believe that any pneumonia which shows its first symptom more than twenty-four hours after the administration, or thirty-six at the outside, cannot be classified as an ether pneumonia.

**E. M. Ewers**, Somerset: We did not know in China that there was any danger from spinal anesthesia. For nine years we used it exclusively for all operations below the navel. We hadn't much experience above the navel because we didn't have that variety of cases coming to us. The only thing we ever had in the way of trouble was a slight headache. We used no ether because it was too expensive. We had chloroform to supplement, and in the average cases, three or four or perhaps five hundred a year, we used spinal anesthesia. We made it ourselves; we didn't know exactly how, and yet we found it very, very satisfactory.

Someone mentioned being hidebound. I think we are a bit hidebound in the Orient in thinking that spinal anesthesia properly used is perfectly safe.

**A. D. Willmoth**, Louisville: I think that any paper on anesthesia is intensely interesting to the surgeon, because it is the one thing that he has to have in practically all of his work; he must either have a local or general anesthetic.

When it comes to the question of general anesthesias, I am old enough, and many of you are, to remember the tidal waves that have come from time to time. Many of us remember the work of Corning with cocaine, and since that time it has been revived a number of times, each time to have the usual remission.

I predict to you that the remission is at hand at the present time for spinal anesthesia. Personally I know of six deaths in this town in one month from spinal anesthetics, and that is more than happened in this city in six years from general anesthesia in the hands of men and women who are trained to give general anesthesia. What do you do? You put the patient in the Trendelenburg position with the slant in the spinal canal; you inject the fluid, and you hope that it won't penetrate only just so high, but it does penetrate the entire brain and central nervous system as is evidenced by the motor oculi nerve, which comes directly off the brain stem, being the most commonly involved in paralysis following its use. In other words, if you had a glass tube filled with a solution and put a few drops of bluing in the top end, you would hope it wouldn't settle to the bottom; if it does it is just too bad, the whole solution is colored. That is the problem of spinal anesthesia. I want to tell you that when you inject the whole dose of anything into a patient's system that you can't get back, you have a dangerous agent to control. It is so dangerous that if you will familiarize yourself with the literature today of the leading surgeons of this country, you will find that they are condemning it in no uncertain terms. I refer specifically to the Yearbook of Surgery, which is a resume of surgery of the country for a year; I refer to Miller's new book on gynecology in which he tells you that it has no place in the field of surgery because of the risk. You don't know the indications; neither do you know the contraindications for it. The complications are just as many as they are in general, if not more, to say nothing of the primary risk.

Again I want to call your attention to the fact that one of the great problems that is confronting the patients that have had spinal anesthesias (and I know of more than one) is the neuropathic side. Ask the neurologists what they think of the patients that have had it, and you can count on your fingers the people who have had it that are various neuropathic cases, that are wrecked physically for the rest of their lives. Something has happened in the spinal cord.

I agree with the speaker who said that any post mortem that does not go into the finer pathology of the spinal cord is absolutely worthless so far as the end results of spinal anesthesias are concerned, because it is the spinal cord and the central nervous system that you are dealing with primarily and secondarily, and the complications that you get are there, and you will get plenty of them if you follow up the cases.

Most patients who have it don't want it the second time. Did you ever notice that? There is a psychological effect on the patient lying on the table and being cut; he is not keen for it the second time. For that reason, I say to you that I am quite sure today that we are in the remission again of spinal anesthesias, and in the next five years you will hear very little said about it.

**J. G. Sherrill**, Louisville: This last speech evidences one thing; that this gentleman is not as familiar with this topic as he talks. I used this in the early days when it really was an experiment. Following the work of Leonard Corning, Tuffier, and Bier, Dr. Sharpe of Jeffersonville and I did nearly 100 cases, and I reported the work that I had done, about 37 cases, to this body in 1901. You will find it in the transactions of that year. We used cocaine, which was much more dangerous than the drugs that we are using today. We found the results to be alarming at first because we did not understand the dosage. None of them died. I never have had a death personally from the use of spinocaine, cocaine, eucaine, or any of the new caines, so that speaks pretty well.

It is a matter of personal equation as to the impression left on your mind. What I said in 1901 I can say with truth today: there is less nausea, less headache, less shock, less depression to the pulse at present under the new method. I can't agree with Pitkin as to stabilizing and telling where he is going to put it: it can't be done. You can put the drug into the cord by injection, and the more force you put into it the higher goes the wave. Morton of San Francisco took out tumors of the jaw under spinal analgesia.

It is the best anesthetic for all cases: in certain work it is ideal. For rectal work it is splendid; you don't have to tear your sphincter to pieces to get a complete relaxation. In work on the bladder it is ideal. One of your anesthetists, by the way (Dr. Smith can tell you who he is), has had four spinal anesthesias. The patients advertise it to everybody else as the best thing they ever saw.

I don't use it as much for my own personal convenience as some do, but when I see an indication for spinal analgesia I use it, and I think in cases in which it is suitable it is one of the best there is.

Chloroform has been neglected very sadly. Those things that Dr. Long stated about the statistics are absolutely true. A great battle was fought years ago between ether and chloroform. Macewen fought for chloroform; others in London were fighting for ether. Macewen told me of a case of heart disease, and he sent to London for an anesthetist to give ether. The anesthetist came and said: "This is heart disease; I can't give ether." Chloroform was used and the patient went through safely.

The people who have spinal anesthesia think it is the finest thing in the world. If you alarm your patient and tell him you have a terribly dangerous thing, of course you are going to have trouble. Certain people cannot stand to know what is going on during an operation; certain others are phlegmatic, they can take a little opiate, and go along without trouble. Morphine is the best stabilizer we have. If you give morphine beforehand you have dulled the sensibility of the patient; it is fine. Ephedrine we didn't have in the old days to keep up the pressure. If you will use those two remedies in conjunction with the spinal method, you will find you have a great and really safe proceeding, but you must use a little gray matter with any anesthetic that you give.

**R. L. McCormack**, Louisville: I am sorry I did not hear Dr. Smith's paper and I hope I don't repeat, but I wish simply to discuss briefly the physiology of the nerve cell in anesthesia. Anesthesia, as Claude Bernard showed sixty years ago, and it has been proven since, is due to agglomeration of protein in the nerve tissue. Resuscitation from anesthesia is due to peptizing agents as adrenalin, ephedrine, and lately carbon dioxide. Both of these phenomena are dependent on the presence of an electrolyte which is the blood. Any time in anesthesia that the blood is absent or diminished to the part that is anesthetized, whether it be local or whether it be general or cerebral anemia, agglomeration takes place faster than peptization can balance.

Carbon dioxide as it is used today is one of the best peptizing agents that we have: it is the fastest and acts on more systems than adrenaline or ephedrine. Carbon dioxide stimulates respiration by increasing the amount of electrolyte to the part that is anesthetized, thereby lowering the threshold. Carbon dioxide stimulates cardiac action by increasing oxygenation and increases blood supply by speeding up the circulation and increasing tone of all tissue.

Sherrington described tone as being a "'state of constant partial activity of a tissue." This constant partial activity is maintained or brought about following anesthesia or during anesthesia by the balance between the two nervous systems, the sympathetic and the parasympathetic secondary to the center.

The elevation of the level of the balance or equilibrium, between the sympathetic and parasymypathetic systems is brought about by peptizing agents overcoming agglomeration.

Lowering the level of the sympathetic-parasympathetic systems, or an imbalance between the two systems, is cause enough to result in severe shock. Three factors then are responsible for shock, primarily. Over-agglomeration due to overdose of anesthetic needs no explanation. The absence or diminished supply of electrolyte will allow continued over-agglomeration, just as lack of sufficient peptizing agent which is necessarily carried by an electrolyte will do. Shock in either inhalation or spinal anesthesia depends for its initiation upon derangement of one or all of these three factors. Peptization alone can overcome shock. Carbon dioxide, the peptizing agent par excellence, first stimulates lowering of the vital threshold, raises the level of the sympathetic and parasympathetic equilibrium, increases respiration in depth and rate, accelerates the red cell, and increases oxygenation of the heart muscle. It improves the tone of every tissue in the body. Its use should supplant, or at least be an adjuvant to all the remedies that are in vogue at the present time for the treatment of shock, especially in practices as dangerous as spinal anesthesia.

**Uly H. Smith,** (In closing): First I want to thank the gentlemen for their liberal discussion. I am glad to see that a good many of my statements have been corroborated by the experience of others, with one exception, Dr. Willmoth. He seems to have a viewpoint which differs from some of ours. Personally I don't believe much in statistics, for the reason I gave in my paper. Someone has said that there are three kinds of liars, plain liars, damned liars, and statisticians. I believe less in them now than when I came into the room, after hearing Dr. Willmoth speak of the six deaths that he knows of.

Dr. Harry Frazier of this city has analyzed 200 consecutive cases of spinal and inhalation anesthetics, and he finds that in the inhalant group the pulmonary complications are decidedly greater than in the spinal group, although there are some in the spinal group too. It brings to mind the fact that most of us have seen hip fractures in which the patient has had no spinal anesthetic or inhalant, for that matter, and they have developed pulmonary complications and died.

Morton and Wells, in about 1842 when they were giving a little nitrous oxide and ether, about the time Long of Georgia started with ether, were doing an operation and one of the anesthetists was late and they decided not to wait for him and as they made the incision the patient died. If that patient had had a little ether or nitrous oxide, this experience probably would have stopped inhalant anesthesia in the offing.

Dr. Harry Woodard is the man to whom Dr. Sherrill referred who has had four spinal anesthesias. He still says he thinks the inhalant anesthetics are better because he makes his living giving them, but he submitted to four spinals and says he would take another.

I have in mind a layman who has had four spinal anesthetics. He is a gong ringer for a boxing club. If you ask him what he thinks of it he says, "great," that he wouldn't smell ether for anything.

I read the paper to which Dr. Heim referred about the experiments with dogs, and I wonder if they can get a proportionately small needle for the dog canal to correspond with the needle we use for the human canal. Twenty-two gauge is our size, and I wonder if the needle for the dog can be sufficiently small to give a comparative result.

As to controlling the height of the anesthetic, Pitkin's spinocaine sounds theoretically all right, but one solution is heavier and one is lighter than the spinal fluid, and consequently when using the lighter if you Trendelenburg the patient the tendency is for the spinal anesthetic to drift toward the feet, and the reverse is also true; in using the heavy when the patient is in the Trendelenburg position it gravitates toward the head. They probably had in mind some cases where they wanted the patient in a semi-sitting posture and didn't want the anesthetic to travel very high.

At the Jackson Clinic, a man who has written a good deal, Stout, seems to think that immediately after you finish with your barbotage, that is expanding the spinal fluid, there is an immediate fixation of the spinal anesthetic in the nerve tissue, that after a moment or two it doesn't make any difference what position you put the patient in, on the side, lithotomy, Fowler, Trendelenburg, or what-not, and I believe this is well borne out. We thought for a while that we had to Trendelenburg them immediately, but we don't.

I sometimes don't call on an anesthetist when the patient is poor and can't pay the fee. I give them the spinal and go ahead and operate, especially for pelvic conditions.

## THE TREATMENT OF COMPOUND FRACTURES*

Carlisle R. Petty, M. D., F. A. C. S.

Lynch.

The ever increasing number of automobile accidents occurring on our crowded public highways have created a more widespread interest in the treatment of compound fractures, commanding not only the interest of the surgeon but that of the general practitioner as well since their occurrence makes it imperative that the physician in village, hamlet or even cross-roads be prepared to render intelligent treatment. Where cases were formerly transported to distant city hospitals, the surgeons in smaller hospitals are now being called upon to treat even the more serious cases.

A compound fracture is an emergency demanding immediate effective treatment second in importance only to artificial respiration and to the control of serious hemorrhage since a false step may result in the loss of a limb either anatomically or functionally.

There is no standard type of treatment for all cases of compound fracture; there are, however, certain underlying principles which obtain in all cases that may be modified or expanded to suit the individual case.

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*Read before the Kentucky State Medical Association at Louisville, October 3-6, 1932.

The type of emergency or first aid treatment is of great importance. In our industrial organization where one hundred per cent instruction in first aid treatment has been given, the patient is admitted to the hospital properly splinted to immobilize the fracture and prevent additional damage to the tissues with an emergency dressing of sterile gauze over the wound to prevent further contamination. We are convinced that this intelligent first aid treatment not only lessens pain and shock during transportation of the patient to the hospital but contributes materially to shortening the period of disability.

Following admission to the hospital, the patient's general condition should be considered before any attempt is made to examine the wound or treat the fracture. Pain is relieved by morphine, and should be used as a routine. Where severe hemorrhage has occurred, the circulation should be supported by normal saline or blood transfusion.

Tetanus antitoxin should be given at once in every case of compound fracture in prophylactic doses of 1500 units. It has been shown by clinical and experimental investigation that immunity thus conferred lasts about two or three weeks. In cases of sepsis and badly comminuted wounds, it is not expedient to rely upon a single injection. Additional doses should be repeated every week or ten days until four have been given

At the earliest possible moment an X-ray examination should be made to determine the position of the fragments and the type of fracture.

An anesthetic should be used during the cleansing of the wound and the reduction of the fracture. General anesthetics are most commonly employed. Spinal anesthesia for injuries of the lower extremity has distinct advantages, and is given by those expert in its use.

The skin and wound surfaces should be cleansed after the administration of the anesthetic before an attempt is made to reduce the fracture. Where dirt has been ground into the surrounding skin surface, protect the wound with a sterile dressing and scrub the surface with sterile water and tincture of green soap and carefully shave. If soiled by grease, this can be removed with ether or benzine. While this is being done, the surgeon or an assistant should hold the limb, exerting gentle traction and supporting the limb at the level of the fracture.

In cases where the compound wound is small, the ragged edges are trimmed away and the wound treated by the Carrel method with sodium hypochlorite in combination with a hypertonic saline, or any antiseptic of choice. After this, the case may be treated as if it were a simple fracture.

In compound fractures with extensive trauma, where dirt and hence infection may have been carried to the deeper parts, or where the bones have protruded through the soft parts, operative exploration of the deep wound is imperative.

For the operation the most careful technique should be employed. The surgeon is gowned, masked and gloved as for a major operation. The tissues are handled with instruments, and the surgeon should avoid putting the gloved finger in the wound. Soiled instruments should be exchanged for freshly sterilized ones, and if the gloves are contaminated from the wound, they should be changed or carefully washed in strong antiseptic solution.

The purpose of the operation is to mechanically cleanse the entire wound, including skin, fat, muscles, and bone of any pyogenic vehicles. This is best performed by progressive excision of the walls of the wound until all contused, hemorrhagic, dirty, ragged or devitalized material is cut away. Care should be exercised in the removal of bone fragments; only those completely detached from muscle or periosteum should be removed.

Following debridement, the fracture is ready for reduction. With the wound open and the fragments exposed, reduction should not be difficult unless there has been great comminution. Reduction may be accomplished by angulating the fragments so that their ends project from the wound; then placing the two in apposition and straightening the limb; or by the method of traction and counter traction while the bones are grasped with instruments and pushed into place.

After the fragments have been accurately approximated, it is important to retain this accuracy of reduction.

Where facilities for operative work on the bone are of high standard, and the surgeon is equipped with the necessary surgical armanentarium, direct fixation with the Sherman bone plate and screws is, to us, the procedure of choice to maintain bony approximation in compound fractures involving the femur or tibia. Since they are weight-bearing bones, anatomic reposition and realignment are most important factors in the promotion of normal functional restoration. If the normal weight-bearing axis is not restored, static disturbance in distal joints is likely to occur.

Following plating of the bone, the wound is left open and Carrel technique instituted. The placing of the Carrel tubes is important. They should be tamponed into the wound with thin strips of gauze and applied so that there is an easy exit for escape of instilled fluid. Irrigation with sodium hypochlorite is commenced immediately after operation.

It is important to supply adequate postoperative support following internal fixation. In fractures of the femur, the leg is placed in a Thomas splint with a Pierson attachment, and suspended from a Balkan frame. The Cabot splint is used in a similar way to provide external fixation in fractures of the tibia.

The plates and screws are removed routinely within five to seven weeks, and the wound allowed to heal.

A visit to the clinic of Dr. Sherman in Pittsburgh, and inspection of his methods convinces one that he has solved the question of what to do with a major compound fracture. He assumes that all wounds are infected and does a clean dissection of all devitalized tissue, followed by internal fixation of fragments, his after care consisting of dakinization of the wound.

Our own end results from an anatomic, functional and economic standpoint have definitely committed us to this method of treatment.

Where facilities and equipment are not available, reduction may be maintained by either skeletal or skin traction on the distal portion of the limb suspended in a Thomas splint from a Balkan frame.

The intelligent treatment of a compound fracture does not end with the removal of the splints but should include proper and sufficient after treatment. The period of disability following a fracture may be considerably reduced by the adoption of a thorough secondary method of treatment. In some cases baking and massage may be sufficient; in others, electro-therapy must be instituted to secure maximum results.

For the past year we have depended largely upon the unit of Dr. Morton Smart in the after treatment of our fractures. Although the graduated muscular contractions are produced by means of an electric current, no curative power is claimed for the electricity; it is merely made use of as the stimulus which produces the exact degree of muscular contraction one wishes.

With this unit the operator is enabled to cause alternate painless contraction and relaxation of the injured muscle or group of muscles. The type of contraction produced so closely simulates the physiological contraction of the muscle that the result is indistinguishable from a normal voluntary contraction. It therefore offers a powerful means whereby the function may be quickly restored if the loss of function is due to wasting of muscles and adhesions and not to any wrong position of the fractured bone.

## DISCUSSION

**Orville Miller, Louisville:** Mr. President and Gentlemen of the Society: I have enjoyed this paper that has just been read to us very much. We all know the large experience that Dr. Petty has had in treating fractures, and we know that he is thoroughly equipped to read a paper such as he has given us. I want to agree with him in what he has had to say in practically every point. I think there is very little that can be criticized. There are some things, however, that I would like to stress in the discussion.

One of them is the first treatment the patient receives after he is found to be suffering from a compound fracture. As Dr. Petty says, of course the general condition of the patient should be looked into as to the state of shock, the hemorrhage, and so on, and this, of course, should have precedence over any examination or treatment of the fracture.

Assuming this attitude, however, I think that in the cases where the bone is protruding through the skin, from my own personal experience at least I have come to believe that the fragments should not be reduced, I mean to say should not be drawn within the skin until the debridement has been done, for this reason: that in practically every case of compound fracture where the bone has protruded through the skin, there is a certain amount of infection present, and if the bone is withdrawn or replaced and the fracture reduced before a debridement has taken place, a larger amount of infection is present later than there would be if the debridement had taken place immediately.

The patient then should have fixation of the fracture with whatever splints can be found, and taken to the place where the permanent treatment will be instituted, and at that time the debridement done and the fracture reduced.

As to the later treatment, I quite agree with Dr. Petty, too, in the insertion of bone plates or Grant's pins, if one prefers them, or wiring, if necessary, in order that these fragments be held in proper position. However, whatever is done in the way of permanent fixation, as far as the internal fixation is concerned, the case should be treated as if the patient already had an osteomyelitis, the debridement having been done thoroughly, not only of the superficial structures, the skin, and so on, but the deeper portions of the wound; Dakin's solution should be instituted, or some other antiseptic, acriflavine 1:1000, a neutral solution, or metaphen which in the hands of many surgeons has given splendid results; certainly it is non-irritating and in the majority of instances seems to be thoroughly dependable.

In cases where a large amount of infection takes place, or where infection takes place afterwards with a large amount of pus, I have found that equal parts of solution of 1:2500 of metaphen and essence of caroid will clean up the wound in remarkably short time, the essence of caroid acting as the digestant, possibly, of the body fluids, and the metaphen having a germicidal effect, and it soon cleanses the wound thoroughly of any discharge, acting in this respect very much like maggots, which have been used quite a good deal in cases where there was a large amount of infection with a slowly healing wound. However, the wound does not heal as rapidly with the use of metaphen and caroid as in cases where maggots are used. Maggots cause the wound to heal very rapidly, it is cleaned up quickly, and the wound heals very promptly and is soon of a pretty pink, healthy color.

Of course, it is not necessary to say that the pins, the plates, the wires, whatever the substance is that is used in the internal fixation should be removed as soon as callus forms, and as soon as we are not afraid that the fragments will be displaced because of their absence.

**D. Y. Graves**, Bowling Green: I wish to talk about a method used in Europe and not very frequently used in this country. I think anyone who treats fractures by the Doctor's methods will get satisfactory results, but I want to confine my discussion principally to the primary suture of compound fractures.

I am going to confine my discussion to eighty cases that I saw in the Royal Infirmary at Glasgow, Scotland, in 1928 and 1929. Theoretically the ideal treatment of any compound fracture is to convert it to a simple fracture. The big bugaboo of that is infection, a thing that everyone fears. The first thing that a person must do in a compound fracture is to save the patient's life. Next he must preserve the extremity. Third, return the patient to work with as good a result as possible in the shortest length of time that is possible.

In examining this method from those indications, I would say we had one death which was directly attributable to sepsis, and that was a case of compound fracture of the frontal bone, with a very marked comminution through the frontal sinus. This case died from septic meningitis. As to the loss of the limb, we had two cases in which infection later necessitated removal of the limb, and in both of these cases it is interesting to note that there was a very extensive fracture in which a debridement was not completely done and in which some form of internal fixation, wire in one case, and the Lane plate in another, was used.

I believe that if we had left out the Lane plate and the wire we would have had no amputation as the result of this method.

There were only ten infections, five of them very slight, and all we had to do in these cases was to treat a slight skin infection. In the other five it was necessary to open up the wound and treat with Dakinization.

After observing this method, I am convinced if we get the case early enough and do a thorough debridement and then close the wound, we will find that we get very good results and cut the length of hospitalization and period of disability down a great deal.

**I. A. Arnold**, Louisville: I want to agree with the essayist, also with the last speaker, as to the manner in which they handle these fractures. One could readily see while Dr. Petty was reading the paper that he had had personal experience and knew the subject thoroughly.

The treatment of fractures begins at the inception and determines the end results. A fracture, whether compound or not, should be manipulated the least possible until you are ready for permanent fixation, as ofttimes it does much harm.

As to the debridement, if this is done thoroughly, I see no objection to closing the wound after fixation of the fracture any more than closing an abdominal wound as the majority of them do not become infected. Should you have infection, which is readily determined by the temperature, it is easy to open the incision and institute Dakin treatment. Otherwise, if no infection occurs, you will have gained considerable time and the fracture is then treated as a simple one. Again, a clean compound fracture if left open, may become infected. In cases that you are apprehensive of infection, it is a good idea to sew up the wound and leave a small telltale drainage. Another thing I would like to say right here, do not use strong iodine in these bone wounds if you expect to close the incision as iodine is an irritant and kills a considerable amount of the tissue and produces a slough. On the other hand, if you are positive that infection is present, the wound should be left open and iodine freely used.

Where possible, do not leave osseous tissue exposed to the atmosphere for any length of time as it invariably dies. The same is true in the placing of Dakin's tubes in the wound. One should be cautious lest the rubber come in contact with the osseous tissue as it is also deleterious. This can be prevented by wrapping gauze around each tube before placing it in the wound and each tube should be so placed so that the Dakin solution will come in contact with the entire area and it is also important that these tubes should be separate and not connected to a single container. Otherwise some of the tubes may be compressed and the solution will go to only one area. In irrigating, a syringe is placed in the end of each tube and the amount of solution desired goes direct to the area to which the tube is inserted. This treatment should be given every two hours for the reason that when Dakin solution comes in contact with the heat of the body, free chlorine is given off so rapidly that it is practically inert within two hours.

I heartily indorse the essayist's method of handling compound fractures with Lane's plate or other metal fixation, also that these should be removed when they have performed their function.

**George A. Hendon,** Louisville: There are some things that we have gotten tied to concerning the nature of bone and its healing that it probably would be better if we would untie or lengthen the tether. I have had some little opportunity to study these underlying conditions, or rather I have been interested because it is such a very fascinating study.

One of those things is this: that our old-time fear of excessive susceptibility in bones is entirely groundless, that bone has the same power of resistance against invasion of bacteria that soft tissues have, except it is greater if the bone nutrition is not interfered with, if the capillary circulation in the adjacent soft parts is not embarrassed, if the burden of apparatus is not crushing in its weight. A bone that is left unembarrassed and unimpaired in its circulation will do the most marvelous and the most remarkable and astonishing things in the way of regeneration that you could possibly imagine.

For that reason, in my management of fractures, compound or otherwise, I rely on that principle, and I am certain, because I have twenty-nine cases of fractures of the femur, not all of those compound, in which internal fixation has accomplished all the restriction that I wanted so far as the fracture itself was concerned. Some support must be used to prevent bending of the knee-joint or the hip-joint, but so far as the fragments are concerned, the method of internal fixation which I like to employ has served an adequate purpose and fulfilled the indications.

Another point is that I have quit leaving bones that are perhaps viable, I mean detached fragments of bones. I have been very careful to take out broken fragments that are liable to prove sources of irritation, and smoothing the jagged ends of the fragments that remain. If you relieve injured bone of this irritation and all embarrassment of circulation, it will bridge chasms as wide as my three fingers, as I have seen it do on various occasions. I think it really is a method to be considered.

When you are through, when you get union established, you are practically finished with your patient because his muscles have not been paralyzed or atrophied.

**C. R. Petty,** (in closing): I wish to thank the gentlemen who have so kindly discussed this paper. I should like to disagree with the gentleman who suggested primary suture of the wound. I do not believe that any wound should be closed until bacteriological examination shows that the wound is sterile. I think that anyone who does is treading upon thin ice.

Another thing that should be remembered in treating compound fractures is that the fracturing force acting to produce a compound fracture is usually a greater force than the force acting to produce a similar simple fracture. Therefore, we have not only a greater injury to the bone, which results in great comminution and separation of the fragments, but a correspondingly greater damage to the soft parts. Therefore, the splinting action which we depend on in treating simple fractures has been diminished by the damage to the muscles and joint ligaments following the force acting to produce a compound fracture.

Someone suggested the possibility that the presence of a Sherman bone plate is conducive to infection. This has not been our experience. I should not omit foreign body fixation at the expense of anatomic re-position and realignment.

I should like to comment on Dr. Hendon's suggestion as to the removal of bone fragments. I think this is one of the things in which we can be most over-enthusiastic. In a great many instances large pieces of bone, if left, certainly promote healing of the fracture.

In closing, we should remember that there are three primary or major postulates to be covered in the treatment of all compound fractures: the treatment of the fracture. the treatment of the skin, and the treatment of the deep wound.

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**Tuberculosis with Multiple Synovial and Serous Manifestations.**—Bezancon and his co-workers report a case which was diagnosed as bilateral tuberculous hydrathrosis of the knees. They state that tuberculous hydrarthrosis of the joints is not as exceptional as a simultaneous infection of all the chief arthrosynovia. The serous manifestations were characterized by a double pleurisy complicated by pericarditis without the sign of any pulmonary lesion. The process next appeared in the synovial membranes of the knees, elbows, wrists and ankles, passing through a state of hydrarthrosis but leaving the subjacent bone, the articular surfaces and the ligaments clinically and roentgenologically intact. On the other hand, all the serous tissue, juxta-articular bursae and muscular synovial membranes of the tendons in and about the joints were infected, whether suppuration was present or not. As a whole, the lesions were cold and exudative from the beginning, but there were no active inflammatory reactions and the lesions were different from those described in the course of tuberculous rheumatism. Twice a focal inflammatory reaction appeared at the level of the hydrarthrosis of the knees after subcutaneous or intradermal injection of a small quanity of tuberculin.

# TREATMENT OF GENERALIZED INFECTIONS BY BLOOD TRANSFUSIONS*

W. I. Hume, M. D., F. A. C. S.

Louisville.

Generalized infection, blood poisoning, blood stream infection, septicemia, and septico-pyemia are designations used to indicate one of the most dreaded conditions physicians are called upon to treat. It has long been recognized but as yet treatment must be said to be unsatisfactory and unstandardized except in its generalities. It varies much in intensity and duration of symptoms, the symptoms depending upon the invading organism, upon the resistance of the patient, et cetera.

The mortality, is and has always been high, and nothing can be offered at present which assures control of the condition in any given case. Such admission as to the ineffectiveness of treatment at the outset should serve not to discourage us but be accepted as a challenge and cause us at least periodically to review and to compare to the end that we may be armed with the best weapons offered to date. To indicate the place of transfusion of blood in the treatment, a brief outline of the treatment may be in order.

The treatment should, of course, stress prophylaxis not only in the care and sterilization of wounds, major and minor, but also in early, well directed surgery for removing foci of infections before barriers are broken through. Early supportive treatment to raise resistance—even transfusions of blood in certain cases with threatening localized infection, weakness, anemia et cetera, are apt to be more effective before than after blood stream invasion. Once blood stream infection is known to exist, the treatment may be summarized, mainly, in four parts: (1) surgery to eradicate sources of infection, if such sources can be found, and if such lend themselves to surgical attacks; (2) supportive treatment such as rest, proper care, proper food, liquids, elimination, transfusions of blood, etc., (3) the use of antiseptics intravenously; and (4) anti-sera and vaccines. These features are mentioned about in the order of their importance as your essayist appraises them at the present. Present day practice varies much with individual workers and various combinations of the above are in use.

As will be seen from this brief outline of the treatment of septicemia, transfusions of blood are placed in the category of supportive treatment; it is recorded as an important adjuvant to surgery, and to other means of caring for the patient. The treatment of generalized infections by blood transfusion has been, by many, rated as very disappointing. L. Bruce Robertson (1), who has done so much work with exsanguino-transfusions (bleeding the patient first then transfusing) recommends the method in certain toxemias but admits that the results in septicemias, though occasionally good, are in general disappointing. Numerous other workers, among them Allan Brown (2), of the University of Toronto School of Medicine, and Kurtz and White (3) of the Massachusetts General Hospital, respectively, found little encouragement in the use of exsanguino-transfusions, and immuno-transfusions (use of blood of a donor who has been given a vaccine made from the specific organism) in the treatment of generalized infections. These latter workers regularly found the antibody titer higher in the patient than in the supposedly immunized donors. Such results are also to be expected, of course, when transfusions of un-modified blood are used. That a certain support is given the patient in septicemia, where transfusion of blood of young, vigorous persons which is uncontaminated and compatible, is practiced, seems to be generally admitted; such support seems of value mainly to enable the patient to fight the infection longer in the hope of overcoming it finally but also possibly to fight better for a brief period after transfusion because of added antibodies, complement, et cetera, and thirdly, to gain a stimulus to his blood-making organs at a time when the infection has caused some grade of hemolysis and weakening of his own blood and blood-producing mechanism. We make no attempt to minimize the importance of transfusions of blood in general. In fact, in our work it has several important indications. Its use in septicemias, except in occasional cases, has been rather disappointing but I regard it as ranking next to surgery in importance in the treatment and the chief means of supporting the patient. We use it regularly and sometimes repeatedly. We believe a series of cases in which transfusions of blood are properly used will show better results than another such series without transfusions though we have no statistics on this point.

Since we use and recommend transfusion of blood in generalized infections, is it considered proper and within the scope of this paper, to speak briefly of some of the dangers of transfusions. Unfavorable reactions following the transfusion of blood in the early days, occurred so regularly and were of such serious nature as to prohibit its use. Reactions still occur in spite of the favorable influence of the work of Landsteinner (4) on hemaglutination and that of Jansky (1907) and of Moss (1910) who gave us a method of determining incompatibilities. The reactions ordinarily observed are of three broad types (J. Bordly, 5); (1) those due to incompatibility of bloods; (2) those due to citrate solutions, and; (3) allergic types of reactions. The incompatible types are practically always associated with agglutination or hemolysis of the donor's cells by the serum of the recipient and such reactions are apt to be severe or even prove fatal. In this connection, it is suggested that extreme care in the grouping and cross-matching of bloods is absolutely essential. If time for waiting may be allowed, laboratory readings may be more safe after several hours set-up and except in extreme emergencies no transfusion of blood should be done without careful laboratory tests in the hands of thoroughly competent laboratory technicians. The citrate reaction is characterized by a delayed febrile response, is not often severe and is usually harmless. We use the direct method almost exclusively and thus avoid citrate reactions. The allergic type of reaction may show urticaria, asthma, localized edema and possibly shock, and it may or may not be dangerous. Prevention of this type of reaction is a difficult problem.

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*Read before the Kentucky State Medical Association at Louisville, October 3-6, 1932.

This problem of unfavorable reactions to transfusions is considered apropos here, first, because no severe reaction is without danger to the seriously ill patient and is to be avoided if at all possible and second, since without the utmost care in the selection of donors a fatality may be a direct result of transfusion of blood. Bordley (6) reported three cases of delayed reaction and used fourteen others from the literature for purposes of comparison. Eleven of the seventeen patients died and all ran a course much alike. Febrile reaction first, soon after transfusion, then hemaglobinuria and invariably suppression of urine, then they showed an interval of several days improvement, then several days to two weeks later began a period of agitation or drowsiness followed by uremia. Convulsions and coma are apt to occur. At autopsy, kidney changes were most important although areas of liver necrosis were frequently found.

As attractive as is the study of the causes of such reactions, it is enough here to indicate that they do happen and not infrequently, and we can only suggest means of their prevention. As to the allergic types, apparently little has been said and yet they are important. For the past two years we have made it a rule that donors report fasting, that is, withhold breakfast until after the blood is taken. This may be of value for nutritive tides or alkaline tides, et cetera, even drugs and toxins as from the donor's gastro-intestinal tract—might be at full tide and give the recipient an incompatible or otherwise harmful substance.

It is well understood that more than merely serum and cells may be transferred to the recipient in transfusion. The chemistry of the blood is very complex and varies greatly in health and disease. Disease may be directly implanted by this means. Blood by transfusion is not a simple remedy, and the above considerations suggest the utmost care in transference of blood from one person to another and also further work possibly in establishing of sub-groups of bloods and greater care in the selection and preparation of donors. So valuable, however, is the method of treatment by blood transfusion in this and other fields that the occasional untoward effects do not contraindicate the treatment.

### SUMMARY AND COMMENT

The treatment of generalized infections is on the whole disappointing. A brief outline of the treatment of this condition is given. Transfusion of blood is perhaps not often of first importance and is regarded as a supportive measure mainly. Transfusions of un-modified blood, of blood immunized against specific organisms, and exsanguino-transfusions are alike discouraging in their effects. We use un-modified blood—direct method. Unfavorable reactions yet occur following transfusions. These reactions are of three main types. An incompatibility is most to be feared and unfailing care is urged in grouping and cross-matching bloods. It is suggested also that more care be exercised in the selection, examination and preparation of donors. Transfusions can not take the place of surgery, when surgery is indicated in these cases and other supportive measures must not be neglected. Intravenous antiseptics and anti-sera as well as vaccines certainly are not yet displaced by transfusion, though use of these is not included in this discussion. With certain types of generalized infection, e. g. scarlet fever, I have had no experience though transfusion has been advocated in the treatment. Toxemias offer some positive indications for treatment by transfusion and better prospect of positive good, e. g. as in extensive burns, etc., but these latter belong only indirectly in a discussion of our assigned subject.

### BIBLIOGRAPHY

1. L. Bruce Robertson, Toronto, Arch. of Surgery, Vol. 9, pgs. 1-15.

2. Allan Brown, University of Toronto School of Medicine, Vol. 23, No. 12, pages 645.

3. Kurtz and White, Mass. General Hosp. Journal Med. Vol. 200, No. 10, Mar. 7, 1929.

4. L. K. Landsteiner, Ueber Aglutinaticerschenemungen Normallin Menschlichen Blutes; Akin Kleic Wchnschr. 14: 1132-1901.

5. J. Bordley, Arch. of Int. Med. Feb. 47: 288-375, 1931.

6. J. Bordley, Anal. of Int. Med., 47: 288-315, Nov., 31.

7. Kurtz and White, Mass. Gen. Hosp. Journal Med Vol. 200, No. 10, March 7, 1929.

## DISCUSSION

**Owsley Grant**, Louisville: I think I have rarely heard a paper with which I so heartily agree to the statements made as Dr. Hume's paper. When I read it over preliminary to the meeting, I was impressed with the conservatism which he followed and, as far as my experience was concerned, with the truth of all his statements.

I am particularly interested in the matter of transfusion from two angles from the urological standpoint. The first which Dr. Hume has emphasized and I think is extremely important and has been greatly neglected is the effect upon the kidneys of the introduction of a foreign protein in the form of some type of blood. So far as we know now, the mechanics of whatever does happen after the introduction either of a foreign protein, a dye, is more or less of a haze. Until biology does find for us the causes of such reaction we shall be more or less in the dark.

I feel most certainly very much at a loss to explain why in certain cases of kidney disease transfusion seems to be of so great benefit. Our experience with transfusion as a deterrent to the progress of infection after ordinary infectious kidney disease, especially that which is concerned primarily with the cortex, has been, I think, one of the most outstanding successes that we have seen from a procedure which we do not understand. I mean by that that in those types of cases where the kidney is generally involved in a septic process, where the poison of the toxins or the infection that occurs from some distant foci is excreted through the kidneys, in that particular type of case transfusion does an enormous amount of good. Just why I cannot explain, but I do feel from a urological standpoint that transfusion has a very definite place in septicemia, especially that which is concerned with the secondary infection of the kidneys.

I have just one chart here of a case of transfusion that I don't attempt to explain at all, and yet it shows what has been more or less our general experience with transfusion in the type of kidney that is infected cortically. This shows the patient as she came in, suffering from a very severe pyelonephritis. At this point a transfusion was given. Following that is the rise where she had some moderate reaction and a prompt lapse down to normal. At this point she had another reaction. I am certain from the appearance of her urine that it was due to a reinfection of the cortex of the kidney. Blood transfusion was given at this point, and she is now progressing at that rate. Whether transfusion alone did that or not I do not know, but that is more or less typical of what happens in that kind of infection.

The second thing that I am particularly interested in from a urological standpoint is the fact that Dr. Hume has emphasized what has been so rarely emphasized, that one of the results of a blood transfusion is a severe diminution of the kidney output where there has been a preliminary destruction. The type of case that I think is most unsuitable for transfusion is perhaps in the old prostatic who has a very high blood chemistry. We hesitate at the present time always to give patients who have a high non-protein nitrogen or blood urea, a transfusion of blood, though we use whole blood entirely. It seems very definitely to produce this type of reaction which Dr. Hume has spoken of, that is, first of all frequently a preliminary reaction, then a gradual suppression of urine, and ultimately a fatal outcome.

**James H. Pritchett**, Louisville: Dr. Hume does nothing by halves, whether it be driving down a golf course or spending ten minutes in Havana with his ever present cigar; he always does everything 100 per cent. He has presented a paper very comprehensive, at the same time unbiased. He tells us in one breath that results are discouraging, and in the next breath that we should use it. I think we all feel the same with regard to that statement. Probably in no field of medicine are the results of blood transfusion so striking as in that of pediatrics. We admit, however, that in the presence of sepsis we too experience the same disappointments that you have in the adult.

I call to mind several conditions that yield sometimes readily to blood transfusion. The first of these is certain types of scarlet fever, the so-called malignant type or the septic type, in which no response has been observed to our antitoxin. In some such cases as these I think it is a life-saving measure.

Another condition I call to mind is erysipelas in childhood. It has been my good fortune just recently in the City Hospital in making my ward round with the students, to observe three cases of erysipelas, two of whom were desperately ill, in which daily blood transfusions were given, and in these cases we used the citrate method on account of being on isolation, although whole blood is by far the best method. Two of these cases have recovered remarkably. If I remember, they had daily transfusions to the extent of probably 10 or 20 c. c. of blood to each pound of weight. I again advocate blood transfusion in the acute infections, used early, and frequently. Transfusions during the early stages of acute infections are no longer considered a dangerous practice, and remain our most effective aid in combating sepsis.

**George A. Hendon**, Louisville: Dr. Hume certainly should be complimented on his courage in presenting a paper that is susceptible of discussion.

In regard to the administration of any fluid directly into the circulation of an individual, my observation has been (and I have had rather a rich experience) that the rate of the introduction is the most important feature. When you take into consideration the fact that you introduce a pint of blood into an individual in the space of 10 or 15 or 30 minutes, and when we know by observation and experience that 200 c. c. of fluid an hour is the maximum under ordinary circumstances that any fluid will be distributed, we must then by a little mathematics perceive that at the end of an hour 800 c. c. of that blood is still riding as excess baggage and has not been distributed or appropriated.

The only exception to that rule is for certain replacement where large quantities of blood are wanted to fill up a vacuum, but for the administration of blood to combat any disease it shoud not be administered at a rate of more than 400 c. c. an hour under any circumstances.

The introduction has to be done a little more rapidly for blood than saline solution and glucose to prevent its clotting. By the use of the citrated blood and administering it at the rate indicated you will find that you will not get reactions because the patient can distribute and utilize and assimilate only at a normal rate. I recommend that method to you as the best one that you can use.

**C. C. Howard,** Glasgow: I just rise to make two suggestions in regard to transfusion. I have worried a great deal with it and bought a great many instruments and thrown a few of them out the window. Perhaps I didn't learn to use them properly.

A year or two ago I happened to get hold of a little instrument made in Paris to transfuse with, and it is so simple that it revolutionized my thinking with regard to transfusion. It is a little instrument called the jube. It is made like a luer syringe with a little slot in the plunger. It is so simple that it will revolutionize your thinking about transfusion.

Another thing that I think is of practical value is to type your high school boys, take a Wassermann on the donors and have them ready. That helps a great deal and it helps to train the boys. It is something you can do everywhere, and of course you pay them for the blood.

You don't need a great many instruments, but if you investigate this little instrument about which I have told you, I think you will want to use it. It costs only $29 and it is well worth the money.

**W. I. Hume** (In closing): I have tried several types of apparatus, as most of you men have, and finally we have adopted the Scannell single syringe apparatus, and with that I use an adapter and a Soresi needle. I don't like the Soresi apparatus so well; there is a lot of pumping, and you are more apt to get it out of condition. I like the larger syringe of the Scannell type, but the Soresi needles are easier to handle. A little adapter will solve that problem for you. I think that apparatus is an individual matter anyway.

I think, too, that blood should be introduced slowly. Any intravenous solution should be introduced slowly, undoubtedly. However, a little experience with neoarsphenamine injections will make you get the impression that such things go quickly through a patient. I personally see no good reason for taking several hours to transfer blood.

So many thousands of transfusions have been given by the standard methods and without difficulty that we have not used this slower method as advocated by Dr. Hendon.

Donors are tested and grouped. We have groups of donors here in this city. I think Dr. Harris, city health officer, has about seventy-five firemen, young, strong men, tested out in various ways and ready to give blood. That is all very fine. There is one thing only to be added to that and that is that your laboratory work must be repeated in part at least immediately before each transfusion. Some change in the donor's health, some change in your own patient's condition, for that matter, may change the blood chemistry and the groupings.

There must be, not four groups of blood, but about sixteen, and retesting is strongly urged, no matter if you have donors in groups ready for transfusion.

## DIFFERENTIAL DIAGNOSIS AND TREATMENT OF CHRONIC COLITIS*

Sam A. Overstreet, M. D., F. A. C. P.

Louisville.

A classification of chronic colitis must be to an extent arbitrary since the etiology of some of the forms is still in dispute. A division into Ulcerative and Non-Ulcerative types is safe; but all colitis must be in some degree inflammatory whether due to infection or to physical irritation. In the ulcerative forms there have been found definite causative organisms with the exception of one group which is only partially determined; irritation due to physical agents no doubt plays a large causative part in the second group.

The inner lining of the colon is a mucous membrane rich in mucous producing cells so that in any inflammatory condition mucous in greater or less amounts is thrown out and is shown in the bowel discharge. Mucous Colitis derives its name only on account of the great excess which is found in this form. Two other symptoms are constant in practically all forms—pain and tenderness over the abdomen, and uncomfortable gaseous distention. To what extent the entire intestinal tract is involved in any inflammatory condition of the colon can never be determined. It is no doubt true that in most of the conditions used the term entero-colitis would be more descriptive because we know that there is in most of these groups a definite change of the gastric secretions and frequently the ulceration, when present, involves the small intestine as well.

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*Read before Jefferson County Medical Society, October 17, 1932.

The following division includes the principal forms of clinical importance.

- A. Infectious or Ulcerative types.
  1. Tuberculous.
  2. Entamoeba Hystolytica.
  3. Bacillary Infection, (Shiga, Flexner, Enteritidis)
  4. Undetermined origin, at least in part due to the Diplococcus described by Bargen.
- B. Non-Infectious or Non-Ulcerative types.
  1. Diverticula.
  2. Mucous Colitis.
  3. Spastic Colon.

The first group is characterized by diarrhea recurring in acute and prolonged exacerbations; by ulceration of the mucous lining of the colon; elevation of temperature and otherwise definite evidences of infection; the recovery of specific organisms; and by more or less characteristic x-ray appearances of the colon. The second group is more definitely associated with constipation with alternating periods of diarrhea of short duration; absence of ulceration; occasional, if any, elevation of temperature and seldom any definite evidences of infection; failure to recover characteristic organisms; rather typical x-ray appearances; and its occurrence in definite association with nervous, neurotic, or exhausted states.

Tuberculous Colitis is perhaps the easiest of the entire group to differentiate. It is not known to occur except in connection with active, usually advanced tuberculosis elsewhere in the body, practically always an advanced Pulmonary lesion. The first site of involvement is most often near the ileocaecal valve and characterized by pain and tenderness in the right lower quadrant. Diarrhea of loose and often very foul smelling stools is a most troublesome symptom. This diarrhea may for a long time alternate with periods of actual constipation but tends eventually to be constant with an increasing number of liquid stools and most troublesome to control. The stools contain mucous, undigested food and frequently pus and blood; are sour and rancid in odor and are irritating. Tubercle bacilli usually can be easily recovered—there is always the possibility of the patient having swallowed these bacilli with the pulmonary discharges, however, and their presence cannot be considered absolutely diagnostic of lesion in the colon. Although pus and blood indicate ulceration this can seldom be seen by the proctoscope since the lesion is usually about the caecum. The x-ray appearance, however, is quite typical. The caecum and ascending colon frequently fill very poorly or are quite irritable and empty quickly, leaving an irregular ragged appearance to fluorcscopic or screen examination.

Entameba Hystolytica infection is sometimes incorrectly considered a disease of tropical or subtropical variety. A fair percentage of the cases of ulcerative colitis in Louisville and in cities much farther North are found to be from this cause. Many of these patients are found to have lived or travelled in the South but a sufficient number give no history of having lived below this latitude. Attacks of violent diarrhea sometimes lasting for months alternate with long periods of normal bowel action or even constipation. The diarrhea is characterized by a very large number of stools containing mucous, blood and pus. There may or may not be elevation of temperature. There is usually considerable prostration when the diarrhea is active. A more chronic form with moderate diarrhea persisting over long periods without prostration is also seen. The entire colon may be ulcerated and usually these lesions occur so low in the rectum and sigmoid as to be accessible to proctoscopic examination. Ragged, irregular ulcers frequently with overchanging edges are seen. Material recovered from these ulcers examined on warm stage show active amoeba. Since non-pathogenic amoeba are frequent inhabitants of the bowel the opinion of one trained to differentiate the forms is advisable. The x-ray examination by barium enema will usually show an irregular spastic or string-like ragged colon which is definitely abnormal although the ulcerations can usually not be seen. There is nothing in the x-ray appearance to definitely classify it as being due to amoeba rather than some other infectious form.

The bacillary type of Colitis more nearly approaches an acute form. The patient is taken suddenly and rather violently ill, with high elevation of temperature, frequently chills and sometimes an early delirium. The pain and cramping in the abdomen is intense and must be differentiated from a violent food poisoning. Bowel movements are frequently watery and contain mucus and blood. The attack may last only a few days or may continue less violently for several weeks with marked prostration and weakening. This would be considered an acute rather than chronic form of dysentery except for the tendency to frequent recurrence. Between these attacks there may remain a less active infection giving rise to constant bowel disturbance and low grade diarrhea. The lesion extends throughout the colon and if seen by the proctoscope there are small, usually shallow ulcers of the mucous membrane. The bacilla of Shiga or Flexner or other of this group when cultured from the stool or the ulceration provides a diagnosis. There is nothing characteristic in the x-ray examination.

The most recent organism identified as a causative factor in the large class of chronic ulcerative colitis cases not identified with the above groups is the Diplococcus of Bargen. I have observed at least one case having a bloody diarrhea over a period of four and a half years with the typical symptoms and signs described by Bargen and classical ulcerations of the rectum and sigmoid in which the diplococcus described was recovered; a vaccine perpared and administered over a period of several months along with other treatment. She has remained well now for two years and I have heard other men in Louisville referring to cases which appeared definitely in this class. There seems to be much evidence now to disprove that this particular organism is the causative factor in this group of cases. The diarrhea in this condition is rather constant and may continue over months or several years with discharge of blood, mucus and pus. The ulceration extends throughout the colon and can readily be seen with the prostoscope as less extensive than the ulcerations of ameba hystolytica and more extensive and larger than those found in the bacillary group. They tend to bleed easily. The temperature is usually of low grade. There may be little prostration even when the diarrhea is moderately severe. The x-ray findings are of an irritated colon but not diagnostic.

Diverticula from the colon often may give rise to discomfort, cramping and a low grade irritation. This probably results from the irritation arising from retention of waste material in these pouches. There is no positive manner of diagnosis except by the x-ray which shows budlike projections along any portion of the colon. These may be observed to contain barium sometimes several days after the tract is otherwise empty.

Chronic mucous colitis is not associated with any definite infective organism. Rather, it is found in a characteristic type of individuals and cannot be dissociated from a "Nervous Constitution" as being in some manner a causative factor. It is not meant that it is confined to Neurotics. Nervous, high strung temperament, overwork or worry—any form of nervous or physical exhaustion seem to predispose to the condition in some persons while there is absolutely no such reaction to the same factors in others. The patient may feel quite normal in general, may be even constipated except for occasional acute attacks of acute abdominal pain and cramping. This may be accompanied by headache, a diarrhea and the passage of large quantities of mucus, in shreds, flakes and not unusually in rather tight balls or wads the size of a small lemon which upon tearing apart are shown to be fine strings or shreds of mucous. The gastric content usually is low in acid. There is no ulceration and frequently not even evidence of irritation of the lining of the colon. The x-ray appearance is not diagnostic but shows often a narrow uneven colon. So characteristic are these paroxysmal attacks that the diagnosis of true Mucous Colitis should require these evidences. The condition is really not frequent in occurrence and its diagnosis is not justified upon the usual small amounts of mucus so often found in the other forms.

The last division is referred to variously as spastic colitis, irritable colon, chronic catarrhal colitis or spastic colon. So slight or infrequent is there definite evidence of inflammation found it seems more nearly correct to refer to this condition as Spastic Colon. It is by far the most frequent condition of the above classification. It occurs much more frequently in women than in men, usually in young or middle aged women of the thin, undernourished, below-par type, associated definitely with states of nervous exhaustion or physical fatigue. While mucous colitis may occur as frequently in physically strong and well-nourished persons of high nervous temperament this is far less true of the spastic colon. There is a definite etiological connection in improper foods, irregular habits of eating, poor mastication and digestion of foods and constipation.

Abdominal discomfort and pain is practically a constant complaint frequently along with a variety of other ailments, as headache, pain in the chest, numbness of hands, directed to any part of the body. There is almost a constant complaint of gaseous distension, gas eructations and its passage by bowel. Nausea, poor appetite and distaste for certain foods are common. Headache is a frequent complaint. This constant disorder is frequently aggravated by acute attacks of disabling pain and cramping and inability to sleep or rest; sometimes with loose bowels and passage of more than the usual amount of mucus. These attacks very often climax prolonged periods of physical exertion or mental or nervous strain or irregularity in habits. The physical examination will usually yield some characteristic evidences. There is no elevation of temperature and usually none of pulse. Blood pressure tends to be low; the abdomen usually appears flat rather than distended, is tender all over or along portions of the colon, mostly over the caecum or descending colon and sigmoid. If the abdominal wall is thin the colon may be palpated either in the ascending or descending portions, usually as a firm, tender tube which may be rolled under the hand. The transverse colon can rarely be felt because most often it dips low into the pelvis below the range of abdominal palpation. Rectal examination usually reveals a tight sphincter painful upon any dilitation, sometimes with fissures or hemorrhoids which have resulted from long standing constipation and the persistent use of daily purgatives, laxatives or too course irritating foods. Proctoscopic examination is negative.

Of laboratory work the stomach content is more often than not low in acidity; urine negative; blood count slightly low in red cells and hemoglobin as an indication of somewhat lower than normal standard of health; stool examination and cultures are not characteristic. Gastro-Intestinal x-ray may show a spastic, poorly filling pylorus or bulb; a large atonic stomach and some six hour retention of barium; spasticity may frequently be relaxed by atropin or belladonna and presents no definite organic lesion. At 24 hours the barium is mostly in the proximal colon which may appear dilated with spastic, irregular appearance of the distal half of the colon and sigmoid sometimes with lobulations or balls of barium scattered throughout the entire course of the colon. Barium enema will show ready dilitation of the entire colon or sometimes a narrow colon difficult to fill; there is usually a lack or total absence of normal haustral markings and frequently a pipelike tube which appears irritable and spastic in portions.

I have meant to emphasize the importance of a most thorough and complete physical and laboratory study in this type of colon affection especially. In all other forms there are definite physical or laboratory findings that greatly help in arriving at a definite diagnosis. There are no such conclusive few or single findings in this type. The character of the complaints may very easily indicate gall badder disease, with continuous gaseous discomfort and some indigestion; or subacute recurrent appendicitis with tenderness over the caecum, constipation and occasional nausea. Before a positive diagnosis is reached these two conditions frequently must be ruled out by Graham tests or careful observation over a sufficient period of time to be satisfied that the acute exacerbations are not actually due to appendicitis. In fact, however, these problems are frequently not present at all since the surgeon has long since removed these organs either separately or at one operation for relief of the selfsame complaints. The diagnosis of spastic colon is therefore usually a part of the general picture of nervous temperament, physical exhaustion or general state of poor health or to put it differently, the presenting manifestation indicating these accompanying conditions and such a diagnosis cannot honestly be made without the most complete and painstaking study of the patients whole physical and mental state.

In general there is nothing new or individual to be said for the treatment of these conditions which cannot be found in recent texts so that this shall be covered in rather brief outline.

Tuberculous diarrhea is tremendously hard to control, since it occurs late in a disease that is progressively destructive, it can scarcely be hoped to permanently heal the ulcerations. The use of hot applications, direct sunlight or its substitute, ultra violet light, over the abdomen or the whole body; opium or the tincture of opium for relief of pain and cramping; calcium chloride 10% solution—5 cc given daily all help in controlling the diarrhea and discomfort but can scarcely be looked upon as curative. Rest and upbuilding of the patient is of course fundamental.

Amebic dysentery is treated by some preparation of emetine. Cheney outlines a course of emetine medication over a period of twelve days to be repeated at intervals within a month's time until the stools are found to be free from the organisms. Emetine, Bismuth, Iodide in powder form contained in capsules is given as follows: "for four successive nights the patient is given 1/4 grain of this preparation by mouth; then for four nights 1/2 grain; then for four nights one grain. Coincident with the earlier and smaller doses of this drug given at bedtime are given one grain of emetine hydrochloride hypodermically each morning for six doses. This course should be supplemented by 1/2 grain emetine bismuth iodide by mouth each night for a month."

Bacillary dysentery is more often seen in the acute fulminating form. The patient is put at absolute rest in bed and opiates may be required to relieve the severe pain and purging. A cleansing dose of castor oil at first is advisable. All foods are withheld by mouth and nutriment given by vein as glucose solution during the violent attack. A polyvalent vaccine is prepared to be given intravenously. Irrigations of normal salt solutions and of astringent solutions as of Tannic Acid 1:100 cleanse the mucous membrane and assist in healing of the ulcerations.

The isolation of Bargen's diplococcus from the ulcers of chronic ulcerative colitis and preparation of a vaccine provided a specific adjunct in the treatment of this form. Great claims have been made for this method but have been met with as vigorous denials. The vaccine is used with evidence of considerable benefit in selected cases. Rest in bed, limitation of diet, colonic irrigations with saline or antiseptic solutions are all necessary over rather long periods of time even with use of the Vaccine. Kaolin, bismuth or other powders which will form a protective coating over the ulcers of the bowel are especially beneficial in this form.

Diet is an important factor in all of the above mentioned varieties of colitis. Bland, non-irritating foods, sometimes milk alone should be used so long as the patient suffers any symptoms. Coarse foods with bulk appear distinctly harmful.

The treatment of mucous colitis is not so much a problem of measures to relieve the bowel locally. There are no ulcers to heal, usually very little evidence of inflammation. Rest over a long period of time, relief of the nervous strain and removal, if possible, of the factors causing nervous and physical exhaustion are required. Keeping the bowel clean is most important. Alvarez has emphasized strongly the value of plain water saline enemas daily to keep the lining of the colon clean and prevent accumulation of large amounts of mucus. During the acute painful attacks a purgative of castor oil followed by morphine if needed is advisable. A digestant preparation containing belladonna and small amount of cascara taken three or four times daily often give relief. There is little advantage in bismuth, opium powders or Kaolin for local action. The condition is essentially very chronic and tends to recur when the patient falls under another severe and exhausting physical or mental strain.

Rest is perhaps the chief factor in relief of the spastic colon. Since it arises from an abnormal nervous temperament and is excited by bad habits of irregularity in rest, eating and elimination its relief must be chiefly found in correction of these things. The patient is frequently unable to sleep well at night and a sedative to secure 8 or 9 hours of sound restful sleep may play a very important part in improvement. Regular recreation each week or a vacation is often necessary. A bland light diet, regular meals and regular habits of evacuation even by the aid of a mild laxative are of next importance.

The correction of any rectal disorders such as hemorrhoids, rectal fissures or fistulae should never be neglected and occasionally these are found to be the principal underlying cause. Local application of heat to the abdomen seems to relax spasm. Warm saline enemas and the injection of two or three ounces of warm olive oil up into the rectum to be retained overnight help in the same purpose. Tincture of belladonna in small doses daily for ten days or two weeks serve also as a helpful anti-spasmodic. The improvement after such a regime is often most gratifying. These measures, however, must be persisted in over several weeks and it must constantly be borne in mind that unless new and better habits of eating, rest and bowel hygeine are kept up permanently there is danger of recurrence.

BIBLIOGRAPHY

1. Cheny, "Diseases of Stomach and Intestines."
2. Alvarez, "Nervous Indigestion."
3. J. A. Bargen and Andrew B. Rivers, Medical Clinic North America—May, '32.
4. John G. Mateer, J. Blatz, Annals Internal Medicine, Feb. 1932.
5. C. L. Martin, J. A. M. A. Jan. 1932.
6. Rofsky and Meniheims, American Journal of Medical Sciences, Feb. 1932. Vol. 183, pp 252-256.
7. Everett D. Keifer, N. England Journal Melicine, March 17, 1932. Vol. 206, No. 11, pp 552-555.
8. Charles Hunter, Canadian Medical Journal. Feb. 8, 1932. Vol. 26, pp 149-154.
9. S. L. Immerman, Medical Journal and Record, Vol. 135, pp 71-75.
10. Kunsler, Medical Journal and Record. Vol. 135 442-445.
11. Cecils, Practice of Medicine.

## DISCUSSION

**C. W. Dowden**, Louisville: Patients presenting themselves for relief of symptoms referable to the intestinal tract and characterized by diarrhoea or constipation, mucus, blood or pus in the stools, are entitled first of all to a most careful study of their symptoms, then a complete physical examination, examination of the stool for blood, pus, parasites and ova, a protoscopic and sigmoidoscopic examination and finally x-ray studies by barium meal and enema to determine the shape and irritability of the colon as well as mal-formations of the haustra and characteristic streakings, strings, mottling, etc., of the barium column. Such a procedure should promptly disclose organic or ulcerative conditions which include chronic ulcerative colitis, bacillary dysentery, amoebic colitis, tuberculous colitis, the ulcerations from arsenic, mercury and lead poisoning and that occur also as a terminal event in uremia. The one possible exception has to do with amoebic colitis. Failure to find amoeba in the stool or in mucosal scrapings is sufficiently frequent to justify the therapeutic trial of emetin and treparsol where the disease is suspected. An overwhelming majority of cases following such a routine will show no evidence of organic change or infection and it is to the consideration of this large number that I desire to direct my remarks.

The condition is not one of structural impairment and consequently mucous colitis, spastic colitis, or any name suggesting organic change is a misnomer. The term "irritable colon" and "unstable colon," while not desirable are better suited since they indicate a disturbance of function. Such patients invariably have neuropathic constitutions and their history discloses nervous strain, anxiety, work, introspection, insomnia, unhappiness with their lot, family difficulties, etc. They have diarrhoea or constipation and complain of headaches, vertigo, coarse tremor of the hands, pains in the muscles, particularly the back and shoulders, fainting at work, nausea, exhaustion, etc. They all give a history of the daily use of cathartics or colon irrigations. They constitute an intriguing field for the allergic enthusiast and some of them are undoubtedly of allergic causation, especially when diarrhoea follows the use of milk chocolate, clams, buckwheat, pork, carrots, corn, cabbage, fats and beans. However, a diagnosis of nervous exhaustion or neurosis is in accord with the general feeling that most allergic phenomena occur in patients with a hypersensitive nervous system and that such explosions occur with work, anxiety, etc., and not at other times. Foods will agree at one time and not at another. Skin tests frequently are negative, probably because there is no reacting tissue in the skin and elimination test diets must be used.

The predominating role of nervous instability is well understood and the disturbance of the lower autonomic pathways well recognized. It should be remembered, however, that disorders of the higher centers also disturb the colon. Prominent are the anxiety neuroses developing in the face of situations social, economic or sexual and with which the patient cannot cope. The symptoms cover up the difficulty and his attention becomes riveted on the bowels. In the melancholics and the manic depressives, however, the mental depression is the primary feature and the colon instability and other digestive symptoms are relegated to the background.

As to the treatment of these conditions first of importance is the withdrawal of the irritation produced by cathartics, enemas, and irrigations, though frequently a warm saline emena at night may be found helpful. The diet should be simple yet assorted and bland. Where diarrhoea is present frequently some bland inert substance should be added to restore bulk and a sort of frame work for the feces. Agar and to some extent kaolin have served satisfactorily, and similar virtue is possessed by barium. When constipation is present adequate fluid intake is important as well as lubrication from [illegible] with mineral oil and from below with heavier oils, as corn or cotton seed oil, administered preferably with a small hand syringe. Mild sedatives are valuable adjuncts and belladonna is of doubtful value in counter-acting spasm. Of greatest importance, however, is reassurance, re-education and relaxation, which Kantor calls the three r's of successful bowel treatment. Friendliness and common sense are of more value than too great a knowledge of bacterial flora, stasis, etc.. One\writer has said that these patients need a wise friend rather than a specialist on the bowel. Patience and fortitude are of great importance in treatment. It must be remembered that the problems are individual and must be dealt with as a part of a condition of general debility and with less emphasis on intestinal dysfunction.

**D. Y. Keith**, Louisville: Mr. Chairman: It has been demonstrated quite thoroughly how diagnosis may be made in most of these cases, by films presented. I am sure if we had to make diagnosis without the use of x-ray we would fail a great many times; we would not know exactly what we were dealing with. In my early x-ray experience, we saw a great many cases of colitis which were much more severe than the ones we see today. In the fluoroscopic examination of a patient's chest, frequently we find an advanced tuberculous condition which is usually present in all tuberculous enteritis. It is very rare now to see a tuberculous enteritis; except as a terminal condition. Patients are being diagnosed as having tuberculosis of the chest before the colon is infected. Most of us who do x-ray, have very little trouble making a diagnosis of tuberculosis of the cecum.

We have seen cases in the second group, amoebic dysentery, where the bowel was almost destroyed by ulceration and infiltration, and would hold only about 6 oz. It is very rare that you see these extreme cases today of amoebic dysentery or colitis.

The only change I would suggest from the classification Dr. Overstreet has made, would be to distinguish between diverticulosis and diverticulitis. Diagnosis of diverticulitis is hard to make when the inflammation of the colon prevents proper filling of the colon. Differentiation of mucous colitis and spastic colitis is fairly easy as far as x-ray is concerned. Each present rather characteristic features and are rather common in appearance.

I find that there are a great many diseases of man, which are secondary to disease of the colon, which are not recognized. I refer to focal infection. I am sure that within the next few years we will be making diagnoses of focal infection from the colon that may be relieved by treatment given to the colon. As far as x-ray appearance is concerned, changes will be very slight. I am sure that the colon is one organ that is much over-treated generally, and one that is much under-treated from a focal infection point of view.

We have seen many cases of rheumatism, sciatica, neuritis in which the relief is prompt and in many instances spectacular.

**Morris Flexner**, Louisville: This has been a fine paper, and I certainly did enjoy it. There are two or three points in connection with it which I would like to stress. Here, as in most places in medicine, the history is of extreme importance. Within the past few weeks I have been able to guess one diagnosis from the history alone in a patient who came in complaining of cramps followed by a stool immediately after eating. Two weeks before, I had seen a similar case, in whom I had found amoebic dysentery which proved to be the cause of this patient's trouble also. The stool examinations are extremely important but are usually neglected. If at all possible, I feel that the stool should be secured in the Doctor's office in a warm receptacle and examined immediately. A stool passed at six o'clock in the morning and brought in at three o'clock in the afternoon, is of little value in identification of some of the parasites and certainly of little value from a bacteriologic standpoint. The increase in the number of cases of chronic ulcerative colitis in the type described by Bargen, is of interest. Up until four years ago I had encountered but one case in my own private practice, and in discussing the subject with some of the men at the Minneapolis meeting of the American College of Physicians at that time I found that the condition was extremely rare in both Baltimore and Philadelphia; in fact, they were very skeptical of the work of Bargen in both cities. Within the last two years I have had four cases in my own practice, and I am sure that this clinical picture has not been overlooked before. The x-ray findings of short, tube-like descending colon and sigmoid is extremely characteristic of the advanced type. I have recently seen diarrhea from sone interesting parasitic diarrheas with lamblia and trichomonas intestinalis. Dr. Joseph C. Bell will recall a case at Norton's Infirmary with extremely extensive ulceration, with a moth-eaten appearance of the large bowel in which stool was alive with trichomonas. The entire condition cleared up after removing the parasites. Concerning chronic spastic colitis, I have very little to add except to agree with Dr. Bastedo, who on one occasion when asked how to prevent this disease, said that the only way to have done so would have been to exterminate the grand-father of the patient in his youth.

**George A. Hendon,** Louisville: I want to make this observation as a discussion to Dr. Overstreet's paper.

That the colon comes under the classification which was given by Mr. Lane as a provisional organ and while provisional and vestigial organs cause most of our trouble, they can be easily dispensed with. The reason provisional organs are susceptible to disease is on account of their brief hereditary history and consequently, low resisting power. Therefore, if the colon becomes seriously diseased, a short circuit could be made between the ileum and sigmoid, thus switching the colon entirely out of the picture. This could be done either by joining the ileum and sigmoid by lateral anastomosis or severing the ileum above the cecum and anastomosing the proximal end with the sigmoid. By that means, the colon being relieved of its functions will soon become null and void. A cecostomy could be done, thereby affording an opportunity to keep the colon irrigated and thus preventing accumulation of any of medium for bacteria.

I have worked this plan out in practice and find that it answers a useful purpose.

**Max Garon,** Louisville: In attempting to arrive at a diagnosis in the group of ulcerative colitis family, I believe the routine is to rule out the amoebae and other parasites; then do a stool culture; and having found nothing, to assume that search has to be made for the diplococcus of Bargen. Conversely, to make a diagnosis of Bargen's ulcerative colitis first, simply because a diplococcus has been found in stool culture seems a bit far-fetched. It is nothing short of dramatic to watch the serum in Bargen's type of ulcerative colitis bring an immediate response. One case is recalled which Dr. Flexner will remember, that had marked symptoms of diarrhea, with bleeding and high fever for a long period of time. Pregnancy, it seems, caused exacerbation of symptoms. In this one case, the condition had existed without intermission for 4 1-2 years. Two days after the use of Bargen's serum, the bleeding stopped, fever dropped and the coexisting symptoms gradually disappeared. Unfortunately, however, this state of affairs did not persist, but the symptoms are showing gradual improvement following the use of the autogenous polyvalent vaccine made from ulcer scrapings. Streicher, in Chicago, reports a series of more than 100 cases, in practically all of which the diplococci were demonstrated in pure culture. Rather than "gamble" however, he used a polyvalent preparation as a vaccine and secured a remarkable improvement in almost 80% of these cases.

**Wm. J. Martin,** Louisville: In discussing this first group, the ulcerative type, I would put the chronic ulcerative colitis at the head of the list. The three most common chronic infections of the large intestine in the North Temperate Zone, are 1 — bacterial chronic ulcerative colitis; 2—tuberculous colitis; and 3—parasitic infections, of which the most common is amoebic dysentery. Others are found, but for practical purposes they have only to be considered in the differential study of these three.

The three important guides to diagnosis of these conditions, are gross and microscopic stool examination, sigmoidoscopy, roentgenoscopy and of course a history which is always suggestive.

The bacteriologic chronic, ulcerative colitis, I place first because I have had the opportunity of seeing a large number of cases of these, having had the opportunity of working with Bargen on this.

Buie describes clearly the sigmoidoscopic picture is ulcerative colitis and the sigmoidoscopy gives the most positive diagnostic data. A granular, profusely inflamed, easily bleeding mucous membrane is characteristic. The best way, to roughly describe it, is to compare the papillae of your tongue to the smooth mucous membrane of your cheek. The ulcers in chronic ulcerative colitis are pin-point in size and you find the whole mucous membrane of that area involved. There is a sharp line of demarcation between the normal bowel and affected bowel, and there are no areas of normal mucous membrane between the minute ulcers. Very gentle wiping with a cotton swab, will cause these to bleed readily. I think that the pictures which Dr. Overstreet showed are what Bargen and Weber have described as regional, migratory chronic ulcerative colitis. The x-ray picture of this is difficult at times to distinguish from the x-ray picture of tuberculosis, or extensive malignant disease; however, other clinical data such as history and isolation of the organism described by Bargen, clarifies the situation.

In the tuberculous type, sigmoidoscopy is not of as much value as x-ray because it is usually farther up in the bowel and most generally on the right side. The proctoscopic picture of the tuberculous ulcer is a ragged, white top ulcer, with undermining and overhanging edges, and between the large ulcers there may be—and usually is—normal mucous membrane. Involvement is not as diffuse, deep or extensive as it is in the deep, ulcerative colitis, which explains the x-ray appearance after barium enema.

The proctoscopic picture of the amoebic ulcer shows a punched-out appearance, perhaps covered with a mucoid material and have a hyperemic surrounding zone of mucosa but between the ulcers will be found mucous membrane which appears fairly normal. The x-ray except in the more severe cases, offers little help. The treatment of these types is varied. In the chronic, ulcerative type of colitis in which diplostreptococcus as described by Bargen is found, is best treated by injection of specific serum, now obtainable from Mulford and Parke-Davis, beginning with very minute doses and increasing the dose as rapidly as possible up to the point of tolerance. After the acute exacerbation has subsided, autogenous vaccine should be given. I think that the reason so many people disagree with Bargen as to the causative agent, is because they have been unable to isolate the organism described by him. This is due, I believe, to the fact that it is a very tedious bacteriologic performance and the majority of technicians are not willing to go through the procedure as he and Rosenow have outlined. Over-growth of other organisms easily hides the organism looked for. The treatment of tuberculous colitis and amoebic colitis, of course, is very familiar to all of you.

I want to congratulate Dr. Overstreet on his fine paper. It is one of the most interesting ones I have heard on this subject.

**Bernard Asman**, Louisville: The very excellent and very complete presentation of the subject by the essayist renders discussion almost superfluous. Colitis in its various forms is of interest to internist and surgeons alike and too often is neglected by both. From simple acute colitis, due perhaps to some digestive disorder or to temporary fecal stasis, and yielding readily to appropriate treatment, vaying degrees of severity of the disease are encountered finally reaching the severer forms of ulcerative colitis in which perhaps the entire colon is involved. It is in this form of the disease particularly that surgical intervention is applicable.

Internal medication, local applications, colon irrigation, etc. having proven of no avail, an appendicostomy or cecostomy is indicated, or in extreme cases, a right sided colostomy may be done, the advantages of which are obvious. It permits diverting the fecal current, thus placing the entire colon at rest, as well as through and through irrigation with saline or other desired solutions. In this way many obstinate cases of colitis may be cured. It is of course a simple matter to close the colostomy after it is no longer needed.

Certain cases of colitis seem to be due to chronic appendicitis, malposition of the uterus, or adhesions about the abdominal or pelvic organs. It is not unusual to see chronic colitis clear up promptly after an appendectomy in a patient who has suffered several attacks of appendicitis.

Focal infections as a possible cause of colitis should not be overlooked. Not infrequently is colitis relieved by removing dental and nasopharyngeal foci of infection. More important still are the focal infections of the ano-rectal region, as is evidenced by the complete relief obtained in certain cases of colitis following the careful excision of a peri-anal fistula with its surrounding diseased tissue, or other ano-rectal pathology.

**Paul A. Turner**, Hazelwood Sanitorium: Just a word about tuberculous colitis. Dr. Overstreet has given you a rather dismal picture of that condition, and I agree that this is usually a terminal condition. The treatment offered by Dr. Hendon may be all right except in tuberculous enteritis, but if you are going to operate on that you will operate on a corpse. These cases, however, often occur very much earlier than suspected. This is particularly true about tuberculous enteritis, which is of course not under discussion, but there are cases of tuberculous colitis that occur without any symptoms whatsoever. They do not have diarrhea and generally the chief complaint is constipation. These cases are diagnosed by the x-ray, as Dr. Keith has pointed out. I believe that there are ulcers in some form in the intestinal tract in a third of my moderately advanced cases at the Sanitorium. The reason the x-ray men do not see these cases is because patients are not sent to them for "diagnosis of the intestinal tract." Furthermore, these cases do not give the symptoms, and only within the last two or three years have we been able to diagnose them early enough so as to do patient any good. Now, however, in practically all of these cases suspected of having tuberculous colitis, we institute treatment for them right away. Of course, in this sort of case where there is no diarrhea, you do not have to make an effort to control it I agree with Dr. Overstreet that the terminal cases are desperate ones, and we try to relieve the patient of discomfort one way or another. In treating the earlier cases, we get very good results indeed by giving them three times a day a half ounce of cod-liver-oil and three ounces of orange juice in connection with ultra violet ray, which will cure these early cases within two years. In a lot of these cases we control the focus of infection in the lung with artificial pneumothorax, and when the focal infection is controlled the bowel of course more readily responds to treatment.

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# BILATERAL SARCOMA OF THE TONSIL*

Will R. Pryor, M. D.

Louisville.

The patient, A. O., male, 36 years of age, was first seen on July 17, 1930.

He gave history that following influenza four months previously he had noticed painless swellings at the angle of the jaw on each side. He did not think these had increased in size since first noticed. He had lost about twenty pounds and had become very weak with loss of appetite. Recently he had experienced considerable difficulty in swallowing.

The patient was rather emaciated in appearance. He had the frequently referred to "Mouth full of mush" speech. The only glands palpable were those at the angles of the jaw. These were the size of large marbles, the right a little more enlarged than the left. Examination of the throat revealed both tonsils so enormously enlarged as to practically touch in the midline. Each was nearly the size of a hen's egg. There was a bluish edematous appearance to them. The anterior pillars were red.

The conditions to be differentiated were non malignant hypertrophy, primary Hodgkins and Lymphosarcoma. In addition immediate relief from obstruction was necessary.

A red, white and differential blood count and a clotting time were made; also, a Wassermann. These proved negative. A frozen section made from a specimen taken from the medial aspect of the left tonsil reported slight chronic inflammation with no evidence of malignancy. If the clinical course justified a larger piece was requested.

On August 1, 1930, I removed the left tonsil under novocain anesthesia. It was the size of a small lemon and had to be snared out in three pieces. It was spongy and very friable, though definitely encapsulated. There was no hemorrhage. On August 7, 1930 the right tonsil was removed. It was similar in all respects to the left. There were no complications.

A complete pathological report of August 8th stated "The architecture of the tonsils is distorted, being composed of closely placed rather large cells of uniform size and staining reaction. The nuclei are not hyperchromatic and mitoses are not conspicuous. There are no multinucleated cells, no evidences of epithelial invasion, Tuberculosis, Hodgkins or Carcinoma. Impression; Lymphoma, probably Lymphosarcoma." Request was made for more clinical data and further reports were promised.

On the strength of this the patient was subjected to extensive treatment with radium. Seen a few weeks later the tonsillar fossae had shrunk to normal size. There was no lymphoid tissue in either fossa. The angular glands were smaller. The patient was feeling much better and had gained some weight. Examination of the nasopharynx with the post nasal mirror at this time revealed a moderate sized adenoid. It was decided to observe this from time to time.

The final pathological report read, "The normal architecture has been markedly distorted. The tissue is composed of closely placed uniform cells whose nuclei are round, oval and sometimes irregular, due probably to pressure. The chromatin in these rather large nuclei is sometimes present in large masses, but for the most part the nuclei are fenestrated. Some have divided or seem almost ready to separate. These we interpret as typical mitoses. The large vesiculated nucleus described above is the one usually found. Here and there with low power one encounters irregular nests of cells which seem to stain more deeply than the others surrounding these nests. These are taken to represent the normal cells of the lymph node. Stroma is scant. The vessels are not unduly large or numerous. The epithelium covering the tonsil is normal except for some round cells here and there. Diagnosis; Lymphosarcoma."

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*Read before the Jefferson County Medical Society.

Upon examination six months later there was evidenced no recurrence. The adenoid tissue previously noted had not increased in size. Another course of treatment was deemed advisable by the Radiologist which was given at that time.

In August, 1931, the patient had gained weight, was feeling very well, eating comfortably, and there was no sign of any recurrence. The angular glands were about the same size as when the case was first seen. One fine Sunday morning the patient arose, ostensibly, to attend church. He never returned home and has not been heard of since that time. His relatives, with whom he lived, were fearful that he had committed suicide as he had threatened to do so a number of times.

Tumors of the tonsil are among the comparatively rare clinical conditions. Benign neoplasms are the most infrequently encountered of the group. Malignancy of the tonsil is generally considered to be unilateral. Sarcoma of the tonsil usually has the appearance of being encapsulated, in many instances the capsule of the tonsil serving also as the capsule of the tumor. Upon removal of the tumor, however, it is found, all too frequently, that there has been invasion of the surrounding structures. The similarity between chronic inflammatory tonsil tissue and a small round cell sarcoma makes a microscopical distinction between the two at times difficult. We must be guided in these cases by clinical signs. Due to the abundant lymphatic drainage of tonsils sarcoma forms early metastasis in the cervical glands but does not become generalized as soon as might be expected. The growth frequently attains considerable size with no symptoms, the first indication of trouble being the change in the voice.

The prognosis of all malignant growths of the tonsil when treated by surgery alone is exceedingly poor. When some form of irradiation is used in addition the outlook is more encouraging. However, there are very few permanent cures, if any at all.

Up until the past few years radical surgery was the only relief that could be offered a patient suffering from tonsil malignancy. Removal with the cautery was advocated as an improvement because of its inhibitory action upon metastasis. Splitting the cheek to obtain better access was performed; also, ligation of the common carotid with the idea of starving the growth. The most radical procedure of all was removal by lateral or external pharyngectomy permitting complete inspection of the tumor and block dissection of the cervical glands, if desired.

About five years ago, the use of x-ray and radium came into vogue. Quick found that neoplasms of the tonsils were particularly susceptible to radium. After the disease had extended beyond the tonsil, however, its efficacy was decidedly diminished. He stated that metastases to glands of the neck should not be removed but treated by x-ray or radium.

Henry K. Pancoast whose experience dates back many years prefers radium to x-ray as it can be directly applied to the site of the growth.

Grier prefers the combined use of radium and deep x-ray therapy on metastatic masses.

William L. Clark claims better results by surgery followed by electrothermic treatment to reach malignant tissue which could not be reached by the scapel. He believes that either x-ray or radium may be used but never both.

In the case here reported, because of the apparent encapsulation of the tumors and minimum cervical involvement it was decided that surgical removal followed by radium offered the best chance for immediate relief of symptoms.

I have been unable to find a case of bilateral tonsil involvement of this type in the literature.

## DISCUSSION

**J. Garland Sherrill:** This is a case of great interest, because of the fact that both tonsils are affected by sarcoma and this bilateral involvement is so infrequently found in the literature. Another point of interest is the fact that early diagnosis of sarcoma of the tonsil is difficult; it is much easier to determine the diagnosis of sarcoma in a later case.

When operating for cancer of the tonsil, Kocher's method, which consists of sectioning the median symphysis of the lower jaw, makes the tonsil quite accessible. An advanced carcinoma of the tonsil, here at the City Hospital, was removed radically by this method with complete recovery and the patient died with pneumonia eight days later without a recurrence.

**Misch Casper:** I did not hear all of Dr. Pryor's report. However, I would like to add a little say, having only last week seen a case of this sort—sarcoma of the tonsil.

I was struck with the hopelessness of the profession in handling these cases. Of course, we know there can be a great deal done, as there had been in this case; she had had surgery, radium, x-ray and still the growth was actively proliferative. One of the chief troubles in handling the case was hemorrhage due to her biting the extensive growth. It required the extracting all her teeth to overcome this. Patient was only twenty years of age; youth being struck down with a sarcoma is even worse than a carcinoma of old age.

I think the Doctor is to be congratulated for trying to do something, as we should all do in these cases, rather than let them drift to some quack "pathy."

**Octavus Dulaney:** I desire to thank Dr. Pryor for reporting this unusual case. Lymphosarcoma is the most malignant type, usually the diagnosis is made too late for surgery. In my practice I have seen quite a number of cancer throats, and only one to my knowledge has been cured. This patient a man, 55 years of age had carcinoma of the right tonsil and pillars. The patient was treated by Dr. Keith, both x-ray and radium were used, there has been no recurrence in his case for nine years.

I agree thoroughly with Dr. Sherrill if surgery is done it should be radical, the growth should be completely removed and the operation is not complete in most cases without removal of the external glands. Usually lymphosarcomas are very progressive and run their course rapidly The case of Dr. Pryor's is a very unusual one. All tumors of the throat should be looked upon with suspicion. Early diagnosis, a prompt removal of same, followed by x-ray and radium therapy.

**H. C. Hermann:** Dr. Pryor's case of the bilateral sarcoma of a tonsil is very rare and very interesting. I have never seen a bilateral malignancy of the tonsil, but I have treated a number of cases of unilateral carcinamatous and sarcomatous tonsils, and I believe that the use of surgery when indicated and the treatment of x-ray and radium to these cases is of most value, as these cases are usually fatal.

At the present time I have two cases of malignancy of the tonsil. One who had a growth the size of a small hen's egg in the tonsil and subtonsil area, with no evidence of metastasis. This patient was given x-ray therapy to the cervical and tonsillar area externally, that is, cross firing both left cervical and tonsil region with the x-ray therapy.

I considered implanting radium seeds into this growth, but since it is rather hazardous, due to the possibility of hemorrhage and also danger of a radium seed becoming dislodged and dropping into the trachea; and with this in mind I prepared a hooked instrument with the radium needles attached around the hook portion of the instrument, and after cocanizing the throat, this instrument was pressed around and against the tumor mass. It was of some discomfort to the patient, although the proper dosage was administered in this way.

At the present time she is visiting her relatives in the country and having no noticeable effect of the tumor as it has disappeared and she is doing well. There has been no evidence of metastasis and I don't think surgery would be of value as the tonsil and tumor have disappeared and the patient is apparently well and comfortable.

The other patient which was treated during the summer of 1931 with x-ray to the cervical region and radium applied to the tonsil area, which was still ulcerated and inflamed, after the removal of the tonsils, will show the value of x-ray and radium therapy in malignancy of the tonsil. This patient has developed a metastasis to the cervical region and was given the second cervical treatment of x-ray therapy and the glands removed December, 1931. This patient is still living and comfortable with no evidence of recurrence.

The faucial or tonsil area is smoothly healed. The patient now presents only a slight fibrous and scar tissue in cervical region and at the present time, one year and three months from the beginning of treatments, is doing well and comfortable.

It is my opinion that the use of the x-ray and radium offer best results in malignancy of the tonsil, especially before the development of cervical metastasis, while the use of x-ray, radium and surgery is necessary to achieve the best results after a metastasis.

**W. R. Pryor,** (in closing): In this case the apparent encapsulation of the tonsils and the minimal glandular involvement made more radical procedure seem unnecessary. This was borne out by subsequent developments. Complications which precipitated the possible suicide of the patient were mental and not physical.

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**Alveolar Oxygen and Carbon Dioxide and Cerebrospinal Fluid.**—Nicholson reports on the effects of administration of gaseous mixtures high in carbon dioxide and low oxygen on the rate of flow of cerebrospinal fluid of the dog. High carbon dioxide mixtures whether administered with ventilation under physiologic control or with constant artificial ventilation caused a decided increase in the rate of flow of cerebrospinal fluid. With normal ventilation low oxygen caused a marked decrease in the flow of cerebrospinal fluid followed in prolonged administrations by an increase approaching the normal rate. With constant artificial ventilation low oxygen caused an increase in the flow of cerebrospinal fluid. The author believes that the changes in flow which he observed are due primarily to changes in the rate of formation of the fluid, though realizing that they may be complicated by other factors. The fact that the flow of cerebrospinal fluid in its response to the administration of these gases resembles salivary secretion but differs from lymph flow suggests a secretory mechanism of formation of the fluid. The author suggests an explanation of these changes in flow on the basis of changes in acidity of the cells of the choroid plexus, assuming that increasing acidity increases the rate of formation of cerebrospinal fluid, and vice versa.

# APPLICATION OF THE PHYSIOLOGY OF RESPIRATION TO SOME DISEASES OF THE RESPIRATORY MECHANISM, DEMONSTRATION OF THE McCORMACK APPARATUS FOR ADMINISTERING CARBON DIOXIDE AND OXYGEN, WITH METRIC CONTROL*

Roland L. McCormack, A. B., M. D.

Louisville.

Carbon dioxide and oxygen mixture is used in the treatment of the following conditions.

1. Partial Atelectasis.
2. Atelectasis Neonatorum.
3. Drowning.
4. Gas Poisoning.
5. Bronchitis.
6. Pertussis.
7. Lobar and Lobular Pneumonia.

When dealing with the first two groups we are faced with a condition of non-inflation of a part or the whole of the respiratory system. The non-inflation of a part or parts of the lung of the newborn occurs more frequently than is ordinarily realized. The cause may be a lack of inspiratory effort or obstruction in the air passage supplying the collapsed portion. More or less material is frequently pressed into the upper air passages of the foetus and consequently sucked into the lower air passages with the first respiratory attempts. This has been shown many times at autopsy, when death has occurred from other causes than respiratory conditions. The significance of this obstruction is that pneumonia is easily the sequel of just such minor conditions. A careful physical examination to determine the presence of small atelectatic areas or the routine administration of $CO_2$ and $O_2$ mixture might be of value even in the apparently healthy child.

If larger areas of collapse are present, some cyanosis is seen and the respiratory rhythm is irregular, sometimes periodic, as in breathing in atmosphere of low barometric pressure. These infants are seen after long labors as a rule. They have poor tone. They are suffering from anoxemia, which in itself is serious if not corrected, and are very prone to develop pneumonia in the atelectatic portions. Correction of the condition can be brought about by the administration of carbon dioxide and oxygen 5 or 7%. Inflation of all the air sacs increases oxygenation of the pulmonary circulation: consequently increases the oxygenation of hemoglobin. Toxicity of the center decreases with a better supply of oxygen and its threshold of excitability is lowered (1).

Larger involvement of the lungs of the new born has been termed atelectasis neonatorum. It is a state of non-inflation of the lungs (apneumatosis) and the infant is a victim of asphyxia. The clinical picture is close akin to death. A limp, and toneless body in which the heart beat may be so weak as not to be seen or felt. These babies, if you please, may be divided into two classes: (1) the asphyxia livida; and (2) asphyxia pallida. The difference is merely physiological. In the cyanotic asphyxia the respiratory center has become toxic from an excess of $CO_2$ and its response to stimulation has been lowered. Oxygen alone can not do these asphyxias any good because the relative partial pressure can not be raised enough to restore the normal dissociation of hemoglobin in such high pressures of $CO_2$. The solution lies in administering $CO_2$ mixture in high enough percentage to break over the high threshold of toxicity of the center. (2) The pressures necessary in treating cyanotic, asphyxiated newborn, require mixtures as high as 20 to 30%, $CO_2$ plus $O_2$ for short intervals to stimulate the center at all. As the response to stimulation increases, the percentages must be lowered gradually until normal respiration takes place. Removal of the gas mixtures too soon may allow a washing out of the small excess $CO_2$ and respiration will cease because of the still abnormally high nervous threshold. This phenomenon has been described by Henderson (2) as acapnia.

The related condition of asphyxia pallida is as much to be dreaded as that just discussed. This newborn is sometimes quite "pink," the heart beating slowly but respiration is not spontaneous. After a few moments cyanosis does not appear. The pallid asphyxia is an example of the Bohr phenomenon and has been called also a condition of secondary alkalosis. The Bohr phenomenon is simply that a tighter bond exists between oxygen and hemoglobin in the presence of abnormally low pressures of $CO_2$. Secondary, alkalosis is simply a co-existing condition. Since the bond between the oxygen and hemoglobin is exceedingly tight, the tissues do not receive any oxygen even in hemoglobin saturations above 88% and a true tissue anoxemia exists. The respiratory center in this condition suffers a lowered existability and besides needing oxygenation for stimulation, needs a high percentage of $CO_2$. Both of these conditions require immediate respiratory stimulation and the tracheal catheter is the only means of administering gases to the nearly reflexless organism. It is not necessary to see the glottis to introduce a catheter tip for it is there within easy reach. Suction provides a cleaning of the passages for the gases and precludes blowing small plugs into the terminal bronchioles of an already weakly viable body. At all times the pressure of the column should be backed up by a release valve of not more than 10 m. m. Hg. That is the safe pressure that will overcome resistance to inflation and capillary attraction in the collapsed dog's lung. The reduction of the relative percentage of $O_2$ plus $CO_2$ must keep pace with the change in partial pressures in the infant as indicated by improvement of the condition.

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*Read before the Jefferson County Medical Society, September 19, 1932.

It is necessary many times to administer a 5% mixture of $CO_2$ plus $O_2$ by tent, mask or nasal catheter a few minutes, one or more times a day to the infant who presents respiratory difficulty at birth. Especially, is this true of those showing cyanosis at intervals during the first few days after difficult or prolonged deliveries from sometimes toxic mothers. These infants with small areas of atelectasis, poor oxygenation of the hemoglobin and consequently lowered muscular tone and resistance, are fertile fields for pneumonia to develop if lung collapse is not overcome.

Drowning accidents are treated exactly as the asphyxias of the newborn except that the flow per minute of gas must be in proportion to the size of the individual and probably more pressure can be used safely.

In treating victims of gas poisoning, we are faced with the problem of hastening dissociation of CO-hemoglobin (4). All hemoglobin that is not bound by CO is saturated with $O_2$ but CO is about 235 times as hard to separate from hemoglobin as $O_2$. Therefore, $O_2$ cannot supplant CO alone. $CO_2$ stimulates the dissociation of CO-hemoglobin when administered with a full complement of $O_2$. Its administration not only overcomes asphyxia but aids in preventing pneumonia in cases of long exposure and irritated air sacs. The mixture of $CO_2$ plus $O_2$ for gas poisoning must depend on the condition of the patient.

Anesthetic accidents and shock during anesthesia are treated quite successfully with $CO_2$ plus $O_2$ mixtures. The depth of anesthesia can be controlled by the administration of $CO_2$ plus $O_2$. The nausea and excitement stage following anesthesia can be eliminated by its administration after the anesthetic is stopped. An interval of only a minute or two is necessary before the level of consciousness is quite high and a very trying period for the patient will be eliminated. The administration of $CO_2$ plus $O_2$ following anesthetics, also will prevent post-operative pneumonia. The deep breathing and ventilation of the air sacs washes out the small plugs of mucus and overcomes atelectasis if any small areas are present. Its use may be continued for days if the general tone of the patient is low or if the circulatory system is impaired. At the first sign of any pulmonary involvement following anesthetics, $CO_2$ plus $O_2$, 5% should be administered at the rate of about 5 liters per minute—preferably by tent method, for from 15 to 30 minutes each hour until the condition improves. At the beginning of administration, a high enough percentage of $CO_2$ to increase both depth and rate is best to loosen any mucus plugs that may be holding atelectatic areas from dilating. The 5% mixture used by tent method does not appreciably increase the rate, but does increase the depth of inspiration. It causes no discomfort to the patient.

Bronchitis, (so often the forerunner of pneumonia) is an indication for inhalation of $CO_2$ plus $O_2$ mixture. The more complete ventilation of the air sacs promotes drainage of congested areas and prevents atelectasis from walling off infected lobules of the lung.

Pertussis (5) has of late been treated with the same end in view and drainage has been so well kept up by frequent periods of inhalation, that paroxysms have been decidedly reduced in intensity and frequency. The treatment of lobar and lobular pneumonia is very successful. In the normal lung, the aeration of all of the air sacs eventually takes place by successive inspirations; however, all of the air sacs are probably not aerated with each inspiration. The negative pressure in the thorax is dependent on the tone level of the general skeletal musculature. The better the tone, the more adequate the aeration of the air sacs.

Coryllos and Birnbaum (6) have shown the cause of pneumonia to be plugging of bronchi, with subsequent atelectasis. They do not mean atelectasis as we find it in congestion or hepatization, but as a forerunner of the whole process preceeding even the pain and chill—a collapse of part of an already infected lung in a body that is almost always below normal. Loss of muscular tone aids collapse of air sacs. Toxemia begins: (1) its source is in the most vascular organ in the body: (2) the amount of toxin liberated is immediately very great; (3) its effect on every tissue is profound. Loss of general muscular tone with consequent loss of venopressor action, gives an already toxic heart an extra load which it attempts to carry by a more rapid rate. Add to this insult that of anoxemia with its symptoms of delirium, malaise, weakness and increased pulse rate. One cause and probably the most important factor in maintaining the anoxemia, is the shallow, rapid respiration seen in pneumonia. The reason for rapid, shallow respiration is that parts of the lung are badly ventilated and parts are over-ventilated. Quoting from the works of Haldane, Meakins and Priestly (7):

> "In the badly ventilated parts of the lung the volume of blood flowing per minute will be greater in relation to the amount of fresh air entering these parts, than in the well ventilated regions. Hence, the blood will take up more of the oxygen and the percentage of oxygen in the relatively stagnant alveolar air of the badly ventilated parts will fall below the average. The dissociation curve of blood for oxygen is totally different from the carbon dioxide curve, and as the oxygen in the stagnant air falls, the percentage saturation of the blood passing through these alveoli must also fall greatly. But for oxygen pressure above about 88 m. m. Hg. the curve is very flat. Therefore, any increase of ventilation beyond the amount sufficient to keep the alveolar $CO_2$ at this level is quite unable to add appreciably to the amount of oxygen taken up by the blood. Thus, it follows that in the well ventilated parts of the lungs, first the increased ventilation is incapable of yielding an excess of $O_2$ to the blood, sufficient to compensate for the lack of $O_2$ in the blood from the badly ventilated parts, and since more than the average amount of fresh air is passing through these alveoli while no more than the normal amount of $O_2$ in the blood from the badly ventilated parts, and since more than the average amount of fresh air is passing through these alveoli while no more than the normal amount of $O_2$ is being absorbed by the blood, the air expired from these well ventilated alveoli must be abnormally rich in oxygen. Thus the average composition of the alveolar air may remain constant as regards percentage of oxygen, as is normally the case, or when breathing is abnormally shallow, the oxygen content of the average alveolar air may rise above the normal level even though at the same time the arterial blood is inadequately supplied with $O_2$."

Thus a pathological condition is set up as a result of the chain of symptoms following onset of a profound toxemia and it can and does become a link in a vicious circle that may mean death. Cyanosis and respiratory rate are closely related and the former becomes evident when respirations reach and exceed 50 per minute. Persistant anoxemia has its effect on the cardiovascular system both directly and indirectly. The heart muscle can not work under deficient oxygen supply and the general body-tone will diminish. Shock develops with the gray cyanosis which is seen when fall in blood pressure takes place. Meakins (7) concludes, "That the anoxemia occurring in acute lobar pneumonia is the result of rapid and shallow breathing typical of this condition."

How, then, can it be possible to relieve cyanosis of pneumonia by administration of oxygen. It seems evident when the foregoing facts are considered that, any relief from cyanosis must depend on the amount of toxemia present, the type of infecting organism and resistance of the patient, rather than on $O_2$ administration alone.

From the clinic of Dr. Leon H. Collins, Jr., (8) of the Hospital of the University of Penn., we have data on oxygen administration in pneumonia and find that 66-2/3% of those cases that received oxygen showed no relief whatsoever and if we add to this number those who showed some change in temperature, pulse, and respiration, after administration but questionable change in cyanosis, the percentage reaches 77. The mortality rate in 23 cases of lobar pneumonia at Collin's Clinic, that received oxygen therapy, was 56.5%. The mortality of 38 cases receiving no oxygen, was 15.8%.

It is true that oxygen has been used in only the gravest cases, and that the mild cases get well without oxygen therapy. Facing the facts as they are, does it not seem that oxygen therapy in pneumonia when true anoxemia is present, is nothing more than the heroic gesture it has been called.

Relief in pneumonia (9) must come from early correction of the atelectasis by drainage. This can be done by increasing the volume of inspired air, even if rapid breathing has already set up. Increased tidal volume demands dilatation of greater areas of the lung. Gas behind plugs in the terminal bronchi acts as a battering ram to drive them out. As the plugs migrate towards larger bronchi their thickness decreases in proportion to the cross section until capillarity can no longer hold the film together and the "doughnut" or "ring-shape" results. When air can pass over or through a plug in a bronchus or air sac, then dilatation of the terminal area and continued aeration is assured with resulting drainage. Drainage is maintained by the physiologic action of increase and decrease in diameter of bronchi during respiration, causing a stretching and thinning and popping into "ring-shape" of the plugs during inspiration. The added thickness and size of the plug thus helps the air behind it to force it along toward the larger diameters of the bronchial tree. Cilary action can also aid drainage in pushing out mucus when it ceases to completely plug a passage. An ink spot has been seen with a bronchoscope to travel from the carina trachea to the outside within 12 minutes. Oxygen administered to a normal animal slows the rate and decreases the depth of breathing in proportion to the rate of increase in partial pressure in the blood. Oxygen attempts to do the same thing in pneumonia and would if the normal physiological conditions existed, in the lung.

But, will a slowing of the rate and decrease in the tidal volume enhance drainage? It can do nothing of the kind and if it helps cyanosis at all it gives only a sense of false security for it does nothing as has been shown to correct the pathologic physiology. Rate and depth of breathing are controlled by the percentage of $O_2$ plus $CO_2$ and the resulting partial pressures in the air sacs and arterial blood. The early administration of 5% mixtures of $CO_2$ plus $O_2$ increases the depth of respiration but does not materially affect the rate. It drains the areas involved and reduces toxemia. Cyanosis does not develop and the temperature, pulse and respiratory curves descend from high levels to normal within a few hours. When cyanosis has begun to develop it is relieved many times, by $CO_2$ plus $O_2$ mixtures after $O_2$ alone has failed. As proof that no discomfort is felt from long administration of adequate percentages, the patient frequently sleeps during administration when sleep was impossible before.

The heart and circulatory system receive as much benefit from this administration of $CO_2$ plus $O_2$ mixture as does the respiratory system, as is shown by better volume and a steady, slowing of the pulse rate.

As important a consideration as the relief of the immediate symptoms is the economic factor. The average hospitalization (10) of pneumonia in an adult, is 21-23 days even when immune sera are given. If seen early the $CO_2$ plus $O_2$ therapy drains a chest so readily that gradual recovery from a profound toxemia is not necessary and recovery finds a patient feeling quite well and in good tone. No profound collapse is seen, shock does not develop. The graphic recording of any pneumonia resembles a lobar crisis when $CO_2$ plus $O_2$ therapy is used; but the patient is not a witness of that mighty drama. Crisis is the termination of a severe anoxemia. Because with the clinical picture clearing as fast as it does in uncomplicated lobar pneumonia with crisis, I can not conceive of anatomical or histological regeneration of tissues accounting for the change that occurs in a few hours.

### SUMMARY

It is only logical to consider conditions of the respiratory mechanism in the light of the physiology and pathologic-physiology that exists. Departures from normal physiological balance should be treated with the end in view of correcting that balance. The control of the administration of gases is accurate and a response of the tissues is immediate. The knowledge of the chemical equations, of normal existence when compared with the depbrture from normal in pathological conditions dictates the character and amount of gases to be supplied. Nature knows few irreversable equations.

### CONCLUSIONS

1. Oxygen should not be used alone to correct these pathologic physiological conditions. $CO_2$ plus $O_2$ are always present in their normally varying proportions in the tissues and are dependent upon each other, during normal life; therefore, also in pathological conditions.

2. $CO_2$ plus $O_2$ administered correctly and early, will reduce the present foetal mortality.

3. Early proper carbon dioxide and oxygen therapy will reduce the mortality in pneumonia as well as shorten the duration of the illness, and lessen the incidence of complications.

4. $CO_2$ plus $O_2$ mixtures must be varied in each case and at different times in each case; therefore, ready-made mixtures are inadequate when the skilled physician is in charge.

### BIBLIOGRAPHY

(1) Haldane, J. S. Respiration. Yale Univ. Press, 1927.

(2) Henderson, Yandell, Am Jour. Physiology. Vol. 26-27, pp. 260-286.

(3) Coryllos, P. N., Atelectasis, Asphyxia and Resuscitation in the Newborn: Am. Jour. Ob.and Gyn. Vol. 21, p. 512.

(4) Haldane, J. S., Respiration. Yale Univ. Press, 1927.

(5) Henderson, Yandell. Jour. A. M. A., Aug. 20, 1932, CO2 in Pertussis.

(6) Coryllos and Birnbaum: 1. Alveolar Gas Exchanges and Atelectasis, Arch. S. Dec., 1930. 2. Lobar Pneumonia Considered as a Pneumococcic, Lobar Atelectasis of the Lung. Arch. of Surg. 1929, Jan.

(7) Meakins, J. Archives of Int. Med. Jan., 1920.

(8) Collins, Leon H., Jr., Results of Oxygen Administration in Pneumonia: Med. Clinics of N. A., Vol. 15, pp 561-568. Sept., 1931.

(9) Coryllos, P. N. Lobar Pneumonia, Considered as a Pneumococcic Lobar Atelectasis of Lung Arch. of Surg., Jan., 1929.

(10) MacCordick, A. H., Canad. Med. Jour. Vol. 25, p 704— Statistical Review, 525 cases of Lobar Pneumonia.

## DISCUSSION

**W. Hamilton Long:** I am very glad to have heard the Doctor's interesting paper and I wish to limit myself particularly to the practical and clinical phases rather than to the fine points of physiology of respiration, which I believe will be taken care of by another speaker.

As regards the asphyxia of the newborn, I think it might be divided into three groups: (1) paralysis, probably due to injury during labor and not necessarily permanent; (2) what we might call asphyxia "by proxy" due to an excess of hypnotics and anesthetics such as chloroform, ether, morphine, barbiturics, et cetera, that may have been given to the mother during long labor; (3) apneumatosis or atelectasis neonatorum.

The treatment, of course, is the same and consists of any method that looks to establishing respiration in the new-born infant. We are all familiar with the usual routine in such cases. First the baby is laid on its right side—usually on its mother's abdomen, and in a minute or two the cord is cut. If by this time there has been no spontaneous respiration, we pick the baby up, hold it by its ankles and usually slip our little finger well down its pharynx and up into its naso-pharynx, then probably slap the infant two or three times on the back, swing it backwards and forwards and proceed with a few movements of artificial respiration either by the "jack-knife" method or manual pressure of the chest suddenly released, this being unsuccessful, with about two or three thicknesses of gauze, we proceed with mouth-to-mouth insufflation. In the intervals, we have probably plunged the baby into hot and cold water alternately, given it altha lobelin or coramine, divulsed the sphincter, and rubbed its spine with a piece of ice.

In the absence of any mechanical device for the use of oxygen and carbon dioxide-oxygen, we have with the above routine, exhausted our armamentarium. The resuscitation device which the Doctor has here on exhibition, and which I hope he will be able to demonstrate as he closes the discussion, is a carefully designed and scientific instrument; but a deep, fundamental understanding of what one is trying to accomplish, is necessary for its intelligent use. Personally, I would like to see every delivery room in the city equipped with this instrument. However, if it is to be used by someone without a real knowledge of these conditions and thus used in a parrot-like and mechanical manner, I would rather trust the chances of a baby to the methods named above, provided they are exercised by an experienced and intelligent obstetrician or anesthetist with a definite mental picture of the condition and a sound conception of what he is trying to do. So long as such an infant has heart action, we must keep up our efforts to establish respiration. I have seen a baby kept alive forty-five minutes by mouth-to-mouth insufflation, which, of course, is carbon dioxide-oxygen therapy, before it took a spontaneous breath.

Inasmuch as nature's method of establishing respiration in the new-born provides for an almost immediate, lusty and vigorous crying, and this causes the baby to inflate its hitherto unused lungs to the utmost, thereby opening up all small atelectatic areas, it is logical in those babies who breathe weakly and in a shallow manner from the first, to subject them to some oxygen and carbon dioxide-oxygen therapy for the first few days of their life to stimulate the depth of their inspirations in order to accomplish the same thing—a procedure that is widely advocated now for the prevention of post-operative pneumonias on the theory that they are atelectatic in origin.

In the resuscitation of adults with suspended respiration, we have the same problem; viz., re-establishing respiration, and the same fundamentals hold. Electric shocks, which frequently temporarily "knock out" workers, cause temporary paralysis of the respiratory muscles, and probably the respiratory center, and we have a partial collapse of the lung. In drowning, we have the lungs full of water, but nevertheless the same procedure will succeed in both cases. Large industrial organizations in cooperation with the Red Cross, have trained their employees in resuscitation work, as well as all sorts of first aid. They are taught the Shaefer prone pressure method; and in the absence of mechanical equipment, and oxygen and carbon dioxide-oxygen, it is the best method devised. Though not applicable in the operating room to anesthesia emergencies, it is, as a manual technique for alternately compressing and expanding the lungs, far superior to the Sylvester method.

**M. W. Caskey:** Oxygen is generally known as the gas essential to life. The great importance and actual necessity of proper oxygen balance is evident when we consider that oxygen lack may be the occasion of:

1. Accelerated respiration and lowered carbon dioxide tension and hence lowered carbonic acid content of the blood, with shift of the acid-base balance. The alkali reserve will finally begin to fall.

2. Interference with combustion of carbohydrates in tissues. Lactic acid is formed in sufficient amounts to cause an intense acidosis of the alkali deficit type to replace the partially compensated alkalosis of carbon dioxide deficit. Since all the tissues of the body are rather sensitive to changes in acid-base balance, and since adequate oxygen plays an important part in maintaining this balance, the value of sufficient oxygen is evident.

Carbon dioxide is generally known as the chemical regulator of respiration. In the performance of this function it operates with the acid-base reaction system of the blood and tissues, and as in case of oxygen, so in the case of carbon dioxide, any marked disturbance of carbon dioxide content of the tissues will be followed by alterations in the acid-base balance. And as would be expected, too much or too little carbon dioxide will be followed by important symptoms. For example, carbon dioxide excess in the body will cause an hyperpnoea which will continue until the excess is blown off and sometimes until too much is blown off with resultant acapnia, alkalosis and tetany. When a carbon dioxide deficit exists, the respiratory center is not properly stimulated and anoxemia may result.

In health the body will obtain oxygen and carbon dioxide in proper proportions from the air and maintain them in proper proportions in the body by very complex mechanisms.

In certain diseases, oxygen and carbon dioxide imbalances occur. Their mechanisms are likewise very complex and poorly understood in many cases. A good introduction to the subject is to be found in a recent book by Peters and Van Slyke (Quantitative Clinical Chemistry. Volume 1. Interpretations.)

The proper use of oxygen in certain conditions, e. g., in pneumonia or carbon monoxide poisoning, has met with very good success and is generally recommended. The scope of oxygen therapy is slowly being extended on a rational basis by its employment in hospitals where careful control is possible and the necessary laboratory facilities are available.

Carbon dioxide is recognized as a true respiratory stimulant, a true respiratory stimulant being defined as an agent which will increase the minute volume of respiration. Carbon dioxide stands in marked contrast to certain drugs such as alpha lobeline, strychnine, camphor, caffein, cocaine, atropine, apomorphine, alcohol, wine, etc., which have been proposed and utilized as respiratory stimulants. Of these, only atropine, caffein and alpha lobeline have any claim to being stimulants of respiration in the above accepted sense. And of these, alpha lobeline should be recognized as a dangerous drug. Its exhibition may be followed by prolonged vomiting, collapse of the vasomotor mechanism or even paralysis of the respiratory center. So when a respiratory stimulant is indicated, carbon dioxide seems to be the substance of choice.

There seems now, however, to be a considerable difference of opinion as to specific indications for the use of carbon dioxide. This is to be expected since its use is relatively new and may be considered in many cases yet to be in the experimental stage. However, as in the case of oxygen we hope that the scope of carbon dioxide therapy may be rationally defined by its employment where careful control is possible and necessary laboratory facilities are available.

**Wm. T. McConnell:** Doctor McCormack has given us a very complete and instructive paper both on the physiology of respiration and the part played therein by carbon dioxide. I wish to state that from hearing this paper and my personal association with Doctor McCormack, I am thoroughly convinced that he has an unusual comprehension of this subject and that from observing his work, his theories have a very definite and practical value.

I have been very much interested in the therapeutic uses of carbon dioxide in the past two or three years and the results attained by its use in my cases have been most gratifying. In asphyxia neonatorum both in the pallida and livida types the administration of carbon dioxide and oxygen has been the most efficient method of resuscitation that I have ever seen. It at first seemed paradoxical to me that a blue baby and one who is palid would both respond equally well to this administration and yet it works out very beautifully. It seems to me that the presence of the carbon dioxide in the oxygen makes the oxygen usable to the patient. In the livida cases a mixture of 5 to 10% carbon dioxide and 90 to 95% oxygen seems to be efficient. In the pallida type, however, we often are forced to use a mixture of carbon dioxide as high as 20 to 30% for few inhalations. Another great advantage in the use of this therapy is the curing or preventing of atelectasis in premature babies. A 5% mixture is given them immediately post partum and treatments are repeated daily for several days. A large percentage of prematures die from atelectatic pneumonia and this treatment has reduced this hazard to a minimum. As to its use with the mother, we have found it very efficient in post anesthetic relaxation. It seems to relieve almost immediately the anoxemia sometimes produced by the anesthetic, thereby preventing shock. I have had no experience in the treatment of ordinary pneumonia but have seen one case of post partum eclampsia complicated by pneumonia cleared up in a few hours by this administration. In the terminal stage of eclampsia the patient's vascular system relaxes and the chest fills up with fluid and death ensues in this condition. In the few cases of this type in which we have used carbon dioxide, the chest cleared up very promptly and the patients have recovered. I wish to call your attention to the McCormack model of the carbon dioxide machine here tonight. With it accurate percentages can be administered together with the proper pressure. This machine was designed by Dr. McCormack and has been used in a great many of my cases with the most brilliant results. I wish to thank Doctor McCormack for his paper and recommend to your consideration the value of this line of therapy.

**James W. Bruce:** I have talked about this matter with Dr. McCormack a great many times and he is certainly very thoroughly familiar with the physiology of respiration. The advantages of the machine are several. In the first place it is possible to so adjust the machine as to use any percentage of carbon dioxide and oxygen that the operator wishes. Sometimes it is necessary to use as much as thirty-five per cent carbon dioxide and sixty-five per cent oxygen before the respiratory center is stimulated to activity. This percentage of carbon dioxide must then be carefully lessened until the same percentage as that found in atmospheric air is used. In the second place on account of the safety appliance it is only possible to have a pressure to ten millimeters of mercury. This is sufficient to expand the lungs provided the larynx is open and yet there is no danger of rupture of the alveola of the lungs, such as takes place with a pulmotor or with forced breathing in mouth-to-mouth breathing. In the third place the intratracheal catheter in the hands of a successful operator can be used very beneficially.

The only disadvantage of the instrument is that it requires someone to operate it who has had experience with it. I would not like to trust it to a student nurse.

Resuscitation of a new born baby is essentially the job of the anesthetist. He is always there and his job, as far as the mother is concerned, is temporarily not necessary and therefore he is free. Also he has a gas machine and is familiar with its use.

The usual causes of inactivity of the respiratory center of a new born baby are (1) Prolonged deprivation of oxygen from asphyxia. (2) Injury. (3) Drugs used in the mother's anesthesia. (4) Prematurity. (5) Shock.

In stimulating the respiratory center to activity the operator must at all times remember to be very gentle so as not to make the condition worse and to keep his little patient warm.

Alphalobelin impresses me as being rather a dangerous drug because it first stimulates the respiratory center and then makes it less sensitive.

**Lee Palmer:** I certainly agree with the essayist, in that the best treatment for atelectasis in the new-born baby is a mixture of carbon dioxide and oxygen. Also, I have seen it used with good results in a number of cases of pneumonia.

I wish to call your attention to a recent report in the Journal of the A. M. A. by Dr. Yandell Henderson on "The Use of Carbon dioxide and Oxygen In the Treatment of Whooping Cough." Dr. Henderson states that in a number of cases it was very useful in relieving the paroxysm; in fact more so than any other method that he had used.

**H. C. Hermann:** As a matter of interest from a Roentgenologist standpoint, how near after birth is it practical to use an x-ray in determining whether you are dealing with a atelectasis neonatorium, either totally or partially, and do you have time (10 to 15 minutes intervals) to allow a Roentgenologist to produce a film of the new born?

I believe that it would be of diagnostic value to have a film of the new born to show the lungs, whether they are inflated partially or totally or to detect a patent thymus. This would necessitate a time of ½ minute to flash a picture and it could be developed while the resuscitation of the new-born is carried on.

This can be carried out especially in hospitals and with the co-operation of the roentgenologist, obstetrician, and anesthetist.

**R. L. McCormack,** (in closing): Let me thank the society for the very interesting discussion. I am glad to hear it said that the treatment is the same whether asphyxia neonatorum is due to atelectasis, or excess of anesthetic. Excess of anesthetic simply causes a shift in the acid base equilibrium, and if this change has not gone past a point which has been termed "the reversal" carbon dioxide and oxygen will correct it beautifully. I am also glad to hear it said that every delivery room in the city should be equipped with some apparatus to administer these gases. It is wrong, however, to even mention a nurse or other attendant in connection with resuscitation. No one mentions the delivery of mothers by nurses, and we do not hesitate to take a forward step in surgery or obstetrics for fear that nurses cannot carry it out. The treatment of any of the conditions mentioned in the essay is one of major importance. It is not so complicated but what every doctor is capable of its use.

Some recent experiments seem to show that physiology of asphyxia pallida does not show a different carbon dioxide content of the blood than is found in asphyxia livida. To my knowledge no work has been done which shows conclusive proof of this fact. It is sufficient to say, as I said before, that the two gases correct them both. Mention of the "proper use of oxygen" prompts me to say that it is my belief that the proper use of oxygen is always with some percentage of carbon dioxide. I can conceive of no condition in which the administration of oxygen alone is proper, in spite of the fact that it is still used. After three years of using oxygen for all kinds of resuscitation, in which time varying degrees of atelectasis have persisted or recurred following its use, carbon dioxide and oxygen have been substituted for oxygen alone and no atelectasis has persisted or recurred and no bronchitis or pneumonia has developed in two years.

In answer to Dr. Hermann's question, atelectasis can be shown by use of the x-ray at any time. It is not necessary to employ x-ray before instituting treatment with the gases, but proof of the existing conditions can readily be demonstrated, as well as its correction, following the administration of carbon dioxide and oxygen. It is not too much to hope that some day every newborn will be treated with carbon dioxide and oxygen immediately following delivery. The obstetrician employs routinely the use of pituitrin or some other oxytoxic following the emptying of the uterus. This is not necessary at all in a large number of cases, it is simply a precautionary measure and undoubtedly averts disastrous post-partum uterine relaxation in some cases. Carbon dioxide and oxygen administration is not necessary in a large number of cases, but its prophylatic use would avert serious complications in some cases. It is impossible to do any harm with these gases when used intelligently.

I thank the society very much for the opportunity to present this paper. The physiology of respiration is of greater importance in medicine than we realize even today, and the subject interests me so keenly that an evening of its discussion affords me great pleasure.

# ACTIVITIES OF THE DEPARTMENT OF PSYCHIATRY OF THE UNIVERSITY OF LOUISVILLE, SCHOOL OF MEDICINE*

Spafford Ackerly, M. D.
Louisville.

I feel honored to have the privilege of addressing you on the subject of the activities of the department of Psychiatry of the University of Louisville, School of Medicine. Those of you who heard Dr. Gardner at the recent State Society meetings give his splendid paper on the development of this department from its early beginnings down to the present, know how much time, thought, and effort have gone into the teaching of psychiatry by such able men as Dr. Gardner, Dr. Moren and of child mental hygiene by Dr. O'Brien. It is only when the foundations of any science have been well laid that progress can take place.

That psychiatry is an important branch of medicine is clearly evidenced when we stop to consider that 51%, or over half, of all the hospital beds in this country are for mental patients. It has been computed in New York State that one person out of ten who reaches adult life spends some part of his life in a mental hospital. In Massachusetts $0.25 out of every $1.00 paid in taxes is spent on the insane. Legislators and tax-payers are looking to the medical profession for help. The profession ought to give as much serious attention in this field as it is giving to other branches of medicine. More research is needed. For this reason, the trend of the times is in the direction of full-time psychiatrists on the staff of medical schools where they not only teach the theory and practice of psychiatry to medical students and develop the psychiatric facilities for the care and treatment of patients in and out of hospitals, but also carry on investigation work into the etiology and prevention of mental disease.

The activities of the Department are as follows:

## 1. Personnel

Clinical Professor, W. E. Gardner, M. D.

Associate Professor, S. S. Ackerly, M. D., Director of Psychiatric Service, Full-time.

Clinical Assistant Professor, H. B. Scott, M. D.

Resident in Psychiatry, Carlisle Morse, M. D. (six months rotation of men selected from the Residents in Medicine).

Senior Interne, R. R. Schlusser, M. D. (rotates every four months).

Junior Interne—rotates every three weeks.

Nursing Staff.

### Staff Mental Hygiene Clinic

Medical Director, S. S. Ackerly, M. D.

Ass't Psychiatrist, Carlisle Morse, M. D., (Resident in Psychiatry).

Chief of Social Service, Mildred Midnight.

Ass't Social Service, Sybil F. Sheldon.

Psychologist, Genette Ulvin.

Clinic Manager, Helyn Cox Campodonico.

Ass't Secretary, Modena Falkenburg.

### Advisory Board

A group of prominent laymen and professional people.

## II. Present Activities

### A. Instruction

1. Medical Students, Juniors and Seniors.

(a) Formal lectures and clinical demonstrations, thirty-two (32) hours.

(b) Ward walks and bedside clinic on psychiatric wards required of juniors, one eighth of third year class in rotation, minimum of 32 hours; optional to a limited number of picked fourth year men; time unlimited.

(c) Third year men required to write up complete histories of ward patients and to make certain number of home investigations.

(d) Visits to state hospitals.

(e) Visits to community agencies by juniors, one-eighth of third year class in rotation.

(f) Special instruction in mental hygiene and child guidance for two members of the senior class most interested in this field whose qualifications are such as to recommend them for the specialty of psychiatry after their medical interneship.

2. Internes, Juniors and Seniors.

Full time psychiatric service and in adult out-patient psychiatric work. They go on ward rounds with the Resident and Director of Service daily, and also accompany the Resident in consultation work on the services, the Director of Service supervising this.

Student Nurses—On psychiatric service under direct supervision of the head nurses. They make rounds with the Resident and Director of Service daily.

### B. Study and Treatment of Patients

1. Psychiatric Service (City or University Hospital, 500 Beds)

(a) Administration:

Four (4) physicians in attendance, Director of Service, full-time; Resident, six months; Senior Interne, four months; Junior Interne, three weeks.

No legal commitment necessary; length of stay averages two weeks; two wards, male and female; twenty (20) beds each; both adults and children admitted; no drug addicts admitted.

Two ward rounds daily, 8:30-9:30; Resident Staff. 12:00 to 1:00, Teaching ward rounds by Director of Service, – medical students, social workers and nurses.

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*Read before the Jefferson County Medical Society, November 7, 1932.

(b) Study of Cases:

Admission note, — Complete physical, neurological, and routine laboratory examinations, including blood and spinal fluid Wassermanns.

Medical and psychiatric histories, mental status, daily progress notes.

Formal staff conference daily on one to two cases; attended by medical students, social workers and nurses.

(c) Treatment:

This is outlined for each patient at 12:00 o'clock ward rounds; cases assigned for psychotherapy to members of the staff. When cases are considered unlikely candidates for state hospital, they may be kept longer on ward and later their treatment continued in the out-patient psychiatric department by the doctor handling the case on the ward.

Each case discharged from service given an opportunity to continue treatment in the Out-Patient or Mental Hygiene Clinic.

2. Mental Hygiene Clinic, (established 1922 by Community Chest) (Seven room brick house opposite City Hospital,—address, 610 South Floyd Street).

(a) Child Guidance Department:

1. Staff (University Appointment): Medical Director: Ass't Psychiatrist (Resident Psychiatric service); Chief Social Worker; Ass't Social Worker: Psychologist; Clinic Manager; Ass't Secretary.

2. Sources of Referrals, Agencies, Schools, Institutions. Physicians (private), Parents (private).

3. Average Yearly Intake, 125.

4. Types of Service, Full study, Cooperative Mental Health Study, and Special Study. Consultation work on wards at Children's Free Hospital and on the wards in Pediatric service at City Hospital.

(b) Adult Psychiatric Department.

1. Staff Medical Director: Assistant Psychiatrist (Resident Psychiatric Service).

2. Source of Referrals. Agencies, Out-Patient Departments of City Hospital, Physicians, and direct contacts.

3. Average yearly intake, 200 (at present rate).

4. Types of Services, Full study, Cooperative study. Special Advise service

### III. Activities Beginning This Fall

A. Instruction

1. Training in Mental Nursing for graduate nurses. (None being trained in Kentucky at present; no mental nurses available.)

(a) Four months course of instruction on psychiatric service, City Hospital.

(b) Not more than three (3) graduate nurses every four months.

(c) Regular nursing duty, lectures, ward rounds, attendance at staff conference.

(d) One year training with attendant's pay at one of the three state hospitals, work supervised by state post graduate training head. Special rotating work planned.

(e) Certificate of proficiency in mental nursing after one and a quarter year's work to be issued by City Hospital training school.

2. Workers from Social Agencies.

(a) Interchange of our experience and viewpoint with that of agency case workers assigned to Mental Hygiene Clinic—four every four months for half time, beginning November 1, 1932. These workers will be exposed to work on the wards and in the Adult and Children's Clinics and will be encouraged to refer maladjusted patients from their own case load. In this way both training and coooperative service can be carried out. The workers will be expected to do field investigation and carry out recommendations.

3. Third-year Medical Students — to make home investigations assigned to them on the wards. Visits to social agencies by third-year Medical students.

B. Treatment.

1. Cooperative treatment planned with Ormsby Village, model school for dependent and delinquent children.

2. Treatment interviews with unmarried mothers in Salvation Army home.

3. Establishment of Occupational Therapy work on Psychopathic Wards,—volunteer workers.

4. Reorganization of dormant hydrotherapy department. Program for personnel and equipment approved if funds are forthcoming.

### IV. Future Activities

A. Instruction.

1. Lectures, demonstrations and practical clinic work for students of sociology department taking the social service courses.

2. Lectures, Demonstrations for graduate students in Abnormal Psychology.

3. Lectures, demonstrations, and clinic conferences for students in the Department of Education.

4. Training in Mental Hygiene for senior

Medical Students.

5. Teaching social viewpoint to student nurses; longer service on our ward (at present only three weks).

6. Seminars for Visiting Teachers, Theological and Law students.

B. TREATMENT.

1. Psychiatric Service.

(a) Development of a general physiotherapy department; establishment of diathermic treatment for general paresis.

(b) Building solarium over psychiatric wings (at present no closed or open porches).

2. Recreational.

(a) Radio.

(b) Ward concerts by students of School of Music if such cooperation can be undertaken.

3. Better ward appearance. Modern windows to replace bars. They will give more air, more light, and be more pleasing to the eye. Sound-proof ceilings.

4. Routine co-operation with agencies on cases discharged from service in helping patients during convalescent period.

5. Psychiatric examinations of students in the University of Louisville.

6. Better relations with Juvenile Court so that cases will be referred to the Clinic for treatment (at present are referred chiefly after commitment and admission to Ormsby Village.)

7. Study of ways and means of having the City Health Department recommend personality as well as physical examinations of school teachers entering the field in order to determine general fitness.

C. RESEARCH.

One of the functions of full time medical men on staffs of medical schools is Research. Ample case material is on our own wards.

Problems are beginning to shape themselves and when time permits, the staff hopes to collect data on

1. General Paresis.

(a) Type of treatment before coming to us.

(b) Diathermic treatment.

2. Catatonic Conditions: the negro—more primitive and more easily studied.

3 Early mental signs, Pellagra, before definite physical signs appear.

## DISCUSSION

**John J. Moren:** I have viewed these pictures with a great deal of interest. They recall to my mind a statement made by some one, that the only two natural people in the world are a child and a crazy person. The individuals in these pictures appear to act perfectly "natural," and do not show any signs of strain upon being placed in front of a camera.

I was particularly pleased to hear Dr. Ackerly's outline of what is proposed to be done in the field of psychiatry in our community. My service in the Department of Psychiatry of the University of Louisville dates back a good many years, when thirty hours was the time allotted to students for the study of neurology and psychiatry, which is entirly too short. The late war had at least one good result, in that it called the attention of the whole world to the importance of the study of nervous and mental conditions in their respective communities, and since the war more attention has been paid to this branch of medical science than at any other time.

In teaching psychiatry, I always felt the need of showing the students typical cases. One could talk about a particular type for hours and then not be able to describe it so that the students would recognize it, so we inaugurated the plan of taking the students out to Lakeland Asylum, of which Dr. Gardner was Superintendent at the time, and with his cooperation we held some very good clinics which proved very helpful in the teaching of this subject.

I recall that, as we progressed in the study of psychiatry, the classification of cases became more and more difficult. The students had a great deal of trouble with the newer classifications, so we finally discarded them and went back to the old clinical type, according to Clauston, who was one of the older writers on mental diseases.

I am particularly glad that an out-door clinic for mental diseases has been developed. There are so many cases where a poor wretch is discharged from the asylum and turned loose without any help whatever, ignored by every one and no one to look to for guidance. These are really the "forgotten men," and there should be some place where they could go for help. Many of these patients are benefitted just by having some one to whom they can tell their troubles and get advice.

Voluntary commitment to institutions for the care of these cases would be very helpful. At the present time, in order to gain admission to one of the State institutions, a person must be declared insane. Many of these individuals would be glad to avail themselves of the rest and recreation offered by an institution voluntarily if they were permitted to do so.

I am a strong advocate of physical, and especially occupational therapy. I recall visiting a State institution and watching a man operating a machine for knitting socks, and an attendant told me that this man was perfectly quiet as long as he was working, but at six o'clock, when they took him away from the machine, he became a raving maniac. Occupation is, to my mind, one of the best things we can do for many of these patients. As to prognosis, two statements have made a profound impression upon my opinion. Lombroso, speaking of criminals, said that they are born that way; and I recall a remark by the Superintendent of one of our State institutions that, if one wanted to find out where insanity originated, to watch the people who visited the patients on visiting days.

**W. E. Gardner:** I am sure we have all enjoyed Dr. Ackerly's rather brief but comprehensive outline of the activities now being carried out and some of the things by which he hopes to build up the Department of Psychiatry. I am impressed by the fact, which I know to be true, that Dr. Ackerly has had the broad clinical background so necessary for one who proposes to deal with child-guidance problems and minor maladjustments of adult life which comprise such a large percentage of the patients who present themselves at the Mental Hygiene Clinic and the outdoor department of the City Hospital. I see nothing objectionable in the films he has shown; many of these patients were blindfolded and the others consented to having their pictures taken, and there is nothing improper in showing them. Dr. Ackerly is simply getting a yardstick by which to measure the more frank and outspoken manifestations.

There is today a tendency in the medical schools throughout the country to provide for a more adequate teaching of Psychiatry. The Association of American Medical Colleges has felt for some time that there should be larger staffs and that a greater amount of time should be devoted to this subject. During the past four years the students have been getting considerable bedside teaching in the psychopathic wards of the City Hospital and now, with Dr. Ackerly to superintend that work, I am sure that the students will get more benefit from their work in these wards than they have in the past.

Before the new City Hospital was opened and its wealth of clinical material made available, the only way to give the students practical demonstrations in psychiatry was to take them to Lakeland and this was practised for a great many years. Classes are still taken there once or twice a year, and the students have opportunities to observe some of the early progressive dementias which have passed through the City Hospital and then gone to Lakeland, and to note the end result of the condition. It is impractical to keep many patients in the psychopathic wards in the City Hospital a sufficient length of time to permit them to recover, and it is frequently the case that, after being dismissed from the City Hospital, many patients will go to Lakeland and make satisfactory recoveries within a few months. Sometimes of course, there are remissions and they come back to us.

The co-ordination of the Mental Hygiene Clinic with the University of Louisville, starting this year, is going to be a very valuable aid. For a number of years the Mental Hygiene Clinic has been supported and operated by the Community Chest, but it has now been placed under the control of the University of Louisville and Dr. Ackerly has his office at this clinic.

There are three fundamental purposes of a department of psychiatry; (1) teaching undergraduates, (2) scientific research and (3) community education. Dr. Ackerly is now giving a good portion of his time teaching junior medical students on the psychopathic wards, and a considerable amount of research work will be done there as well as in the Mental Hygiene Clinic. Later on, he proposes to promote community education through Parent-Teachers' Associations and other organizations of that type. At present the work is seriously handicapped by lack of adequate financial support.

Dr. Moren referred to the desirability of a voluntary commitment law. This would be ideal, but it would be necessary to provide more adequate housing facilities than are furnished by our institutions at the present time. Sooner or later the people of this State must be aroused to the necessity of providing more funds, and if no other way, by diverting a portion of the road tax, for the purposes of rebuilding and refurnishing our State Hospitals, and then will come the voluntary commitment law which is a good thing, and one to which Dr. Ackerly has been accustomed in Massachusetts and New York. It seems to me that if just one cent of the present gasoline tax were set aside for the purpose, it would provide a major portion of the needed funds. Perhaps a sales tax in this State, if it ever becomes a law, would provide a considerable amount of revenue for the improvement of our State Hospitals.

So far as teaching in the psychopathic wards of the City Hospital is concerned, the facilities here, while limited, are probably as good or better than those available to most medical colleges in the South. However, with these limited facilities, but with an adequate personnel, and with the co-operation of the Mental Hygiene Clinic and the Community Chest, we are just starting to develop a plan which promises ultimately to be of real benefit to medical students and to the community at large.

**James W. Bruce:** It is important, of course, that the medical student should have a clear idea of the various definite psychoses, such as dementia praecox, paranoia, etc., because the chances are that he will some time come in contact with such cases, although he will probably not see a great many of them. On the other hand, he is going to have to contend with personality and behavior difficulties of children from the time he begins to practice; he is going to see them every day, and the greater his knowledge of the psychological aspect of such cases, the greater degree of success he will have in dealing with them. To illustrate, I will mention a few of the more common and outstanding examples of such disorders.

Anorexia. Since the war, anorexia has become the outstanding chief complaint for which children are taken to the doctor. The mother will tell you that, although she provides plenty of food, properly cooked and served, the child will not eat it. Many times this is simply a form of negativism, which is very common in children, and it does not make any difference what kind nor how much food she provides, unless she has an understanding of the underlying psychology, she cannot make the child eat. The child has a negative side and is against what she is for, and the harder she tries to make it eat, the more the child will resist. Now, if the doctor tries to treat such a condition by prescribing tonics, or by telling the mother she must provide certain articles of diet, he will accomplish nothing. He must first get a knowledge and understanding of the psychology behind the trouble before he can intelligently treat it.

Enuresis. This has always been one of the bug-bears of medicine. Almost every drug in the Pharmacopeia has been given for enuresis. Why does the child wet the bed? Frequently there is a psychological background which neither the child nor the mother is aware of, and only by minute questioning can we establish it; but, as long as this psychological background remains unrecognized and untreated, we can give atropin, belladonna, and all the other drugs without avail.

Voluntary vomiting. This is one of the most ridiculous conditions with which we have to deal. We have all seen children who seem to be able to vomit whenever they want to, and who keep their parents in a state of terror, because if they put certain foods on the table, or do certain things, the child will vomit. Here again, there is usually a psychological background and we may make x-rays of the gastro-intestinal tract and study the case from all scientific medical angles, and yet get nowhere until we uncover and understand the psychology that is at the bottom of it.

Constipation—probably the most common complaint next to anorexia. Here the child's co-operation must be secured before we can successfully deal with it. We can regulate the diet, and give mineral oils or any other kind of medicine, but there will be no lasting benefit until we gain that child's co-operation and make it realize that it is for its own good that there should be a regular evacuation of the bowels.

Purely medical treatment of such conditions as these, is usually unsuccessful.

**Spafford Ackerly,** (in closing): As has been pointed out in the discussion, there is great need of additional funds with which to carry on this work. Within the next month a survey worker from New York is coming here to make a survey of the various sections of the Department of Psychiatry, and we hope that this will result in an appropriation from the Commonwealth Fund or the Rockefeller Institute, to promote the work here. When one considers that there is no real psychiatric centers in the Mid-west south of Chicago, it would appear that we have a very good chance of obtaining a grant of money. If so, we hope to be able to not only increase our physical plant, but to add to the personnel of the department to enable us to carry on this important work so that we may properly treat the hundreds of nervous patients who are turned away from every hospital out patient service in the city.

# ADENOMA-CARCINOMA OF THE CERVIX, WITH REPORT OF CASE*

WALLACE FRANK, M. D.

Louisville.

Patient, Mrs. W. J. B.; age 34, was first seen by us June 15th, 1931, with a history that she had been married and had one child 17 years of age; no miscarriages. She had had a complete perineal laceration which had been repaired by Dr. Haggard of Nashville, some years ago.

Present trouble began some two months prior to the time we saw her, in April, 1931, with bleeding from the vagina on exercise or walking and vaginal discharge which had been continuous for the past two months. Her menstrual periods had been regular but the flow had been excessive during past three months. However, she passed no clots and had no pain. Otherwise her history was essentially negative.

General examination of the patient was entirely negative until we came to the genito-urinary tract, where we found a relaxed perineum with a bilateral tear of the cervix which was filled with a soft, mushy, granulating mass; erroded and bled freely upon touching. No nodules, no hardening, no fixation, and no enlarged glands that could be made out in the pelvis. The uterus was slightly enlarged, in normal posture, and freely movable. Pre-operative diagnosis: Lacerated, hypertrophied, eroded cervix with possibility of carcinoma.

In June this patient was admitted to the Baptist Hospital, and a section of the anterior lip of the cervix was excised for diagnosis and upon examination by Dr. A. J. Miller, it appeared to be chronic inflammatory tissue. A second piece was removed from the posterior lip of the cervix and upon examination of a frozen section a diagnosis of carcinoma was made.

The patient was treated with radium, receiving in all, 3200 milligram hours of treatment during her stay at the hospital. She was readmitted to the hospital in August and was again treated with radium, following which she was given two series of x-ray treatments by Dr. Enfield.

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*Read before the Medico-Chirurgical Society.

In February, 1932, this patient came back to us with a history that she had again begun to live with her husband who had been a patient in a military hospital. Two weeks previous to the time we saw her she had developed a discharge from the vagina. Examination revealed a very small eroded area at the site of the cervix. The uterus itself was freely movable, no adnexal masses; no glands. In view of the original diagnosis of carcinoma, with recurrence after radium and x-ray treatment, we felt that she should now be operated upon, which was done by radical hysterectomy with removal of one tube and ovary. The microscopic pathology as given by Dr. A. J. Miller is as follows:

Gross Description.

Specimen consists of uterus with left tube and ovary.

Uterus measures 6 1/2 cms. in length, 4 cms. in width and 3 cms. in thickness. The oviduct measures 6 cms. in length and has a few strands of scar tissue connecting its coils. Distal end is slightly bulbous and measures 1 cm. in diameter. Fimbriated end is closed by old scar tissue. The ovary is atrophic, measures 1½ cms., in its longest diameter, 8 mm. in its shortest.

Uterus after detaching tube and ovary, weighs 40 gms. Sectioned surface of ovary reveals several corpora lutea, but they are small.

Uterus is opened longitudinally on its anterior aspect. The cervix is small. At the internal os it is almost closed and here there is a puckered scar. External os is also scarred and puckered. There is also a scar in the right cornu in the endometrium, almost closing the orifice to the uterine tube. The mucosa over the body and fundus is uniform in thickness, measures 2 mm. The scar near the internal os extends up slightly on the posterior wall and also at the lateral border of the cavity upward almost to the mid-portion of the body.

Grossly there is no tumor tissue seen anywhere.

Microscopy

Sections are taken from the entire length of the cervix and from the body. Those from the cervix show thrombosis, complete and partial, of numerous blood vessels. Some of these are well organized, others are in the process of healing. The surface is entirely eroded. No squamous cells, either normal or neoplastic are seen. There is a moderate infiltration of lymphocytes and several areas of old and recent hemorrhage. There are several nests of cells which are cuboidal and arranged in fairly good gland formation. These cells are irregular in size and shape, but not so much as those in the sections of OS-31-555. There are no mitoses. The nuclei have a good and definite chromatin pattern. It is believed that these cells are remnants of the adeno-carcinoma previously reported and that they have approached the normal somewhat since the previous study.

Diagnosis:

Chronic inflammation.

Adeno-carcinoma of cervix.

We bring this case before you this evening for two reasons. First, it emphasizes what we believe to be the correct method of treating cancer of the cervix, by the primary application of radium and x-rays. This woman when first seen was, to my mind, a border line case, and it is a question whether, if she had been operated on at that time, there would have occurred secondary implants from the type of growth she had in the cervix. Second, it shows the effect of radiation treatment. Dr. Miller has, I believe, seen three other cases which we treated primarily with raduim and x-rays and later performed hysterectomy. This is the first one that had any evidence of carcinoma still remaining.

## DISCUSSION

**C. D. Enfield:** I saw this woman yesterday and she appears to be making a splendid postoperative recovery, and has an excellent chance to get entirely well.

This report emphasizes three things: First, the value of the surgeon being what you might call, "cancer conscious." This diagnosis was made very early, and might easily, and perhaps justifiably, have been overlooked for at least some weeks longer than it was. Second, it emphasizes the value of persistence on the part of the surgeon. Had Dr. Frank, as perhaps many men would have, accepted defeat when an ulcer appeared after what was apparently adequate treatment, there would have been a different story to tell. He had done all the routine things and then he proceeded to do something else. Third, it illustrates the value of co-operation between the surgeon and the radiologist in handling these cases and meeting complications as they appear. If these patients be routinely examined by rectum, infiltration will be detected much earlier than if examined by the vagina only. X-ray radiation often causes ulceration of the deposit in the adnexa, sometimes with permanent results and sometimes, as in this case, with recurrence in the cervix.

**Morris Flexner:** I would like to ask Dr. Frank what percentage of cases of carcinoma of the uterus are not treated by radium primarily? My impression is that most of them are.

**Louis Frank:** I am glad that we have had an opportunity to bring this case to your attention.

I believe the time has come when, in the treatment of cancer of the cervix, if anything is to be added to radium it is preliminary, pre-operative x-ray radiation. In many cases it should also be employed through various portals of entry after radium has been used. Certainly, taking the various types of cases as they come, the inoperable, the border-line, the operable and the early cases, radium, especially when combined with deep x-ray therapy, offers the best possibility of favorable results of any form of treatment that has been developed for the cure or relief of this terrible disease. Statistics generally show a record of thirty per cent of recoveries without recurrence over a period of five to seven years. Furthermore, this treatment is attended by no primary mortality. Say what you please about surgery, which is the only alternative for radium and x-ray treatment of these cases, the fact remains that the primary mortality from radical operation, properly performed so as to give the patient the best possible chance for ultimate recovery, ranges from 15 to 22 per cent. I am speaking now of cancer of the cervix and not of the body of the uterus itself. When you compare surgery, with its high mortality rate, to a treatment from which there is no primary mortality and in which the end results are much better, it seems to me there can be no question as to the method of choice in dealing with these cases.

There are certain types of cases which do not yield to radiation, and it is a peculiar fact that where radiation fails, the addition of x-ray treatment also fails to produce results. Such cases are simply radio-resistant. Therefore, we do not favor secondary attempts at radium treatment in cases where there is local recurrence, but believe it far better, as in the case reported tonight where the patient goes on from a border-line case to one which is clearly operable, to go ahead and do a radical operation.

Statistics show that not more than 2 per cent of the cases of cancer of the cervix coming under observation can be really classed as early cases. In our experience this percentage has been somewhat higher, possibly between 5 and 6 per cent, but that has simply been our good fortune. It is a strange fact that the men who have had access to adequate quantities of radium are the ones who appear to be averse to treating the early cases with radium. We have believed from the start that, if late cases are susceptible of improvement under this treatment, there is an even better chance of improvement, or even cure, if the treatment is applied early enough. We began the treatment of early cases with radium in 1918, and since that time we have treated every case that came under our observation with radium or with radium and x-ray and surgery combined.

It is generally believed that, in cases which come to operation after primary treatment with radium, the operative procedure is rendered much more difficult than an ordinary hysterectomy, just as in goiter following x-ray treatment the operative procedure is rendered much more difficult. In our experience, however, this has not been true. In all the cases that we have subjected to radical operation following primary radium and x-ray treatment, we have not met with any difficulty out of the ordinary in carrying out the operative procedure.

**L. Wallace Frank,** (in closing): I wish to thank Dr. Miller for coming here tonight and exhibiting the slides which have been very instructive.

My principal object in bringing this case to the attention of the Society is to illustrate what we believe to be the best method of handling carcinoma of the cervix. I believe statistics show that in ninety-eight per cent of all cases of cancer of the cervix, radium treatment alone will suffice. We must be certain however, that the primary treatment is sufficiently thorough to do the work. It is our technique to give these patients two series of radium treatments. In cases so far advanced that they do not respond to two series of treatments, you might as well quit, because the growth becomes radium-resistant and if the treatment is continued matters may be made worse by the development of a radium ulcer, and I might say in passing that it takes a man of wide experience to diagnose a radium ulcer as differentiated from an extension of the growth itself, and if diagnosis is not made and the treatment continued, the patient is made progressively worse. In cases which do apparently respond to radium treatment and everything clears up, to be followed later by recurrence, hysterectomy is indicated. We have followed this procedure five times, in four of which the primary treatment was given by ourselves, and in none of these cases was the operative procedure as difficult as I expected. We had one case, in which the primary treatment was administered by some one else, and when the patient came under our observation, we had no means of knowing the primary technique employed nor the amount of radium treatment given. When we opened the abdomen to do a hysterectomy, we found everything bound down with a carcinoma at the upper end of the cervix which made radical operation out of the question, and led me to the conclusion that in future any carcinoma case in which I undertake to do a hysterectomy must be one in which I have done the primary radiation.

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**NEXT MEETING MURRAY**

## COUNYT SOCIETY REPORTS

**Fifth District:** The Fall meeting of the Fifth District Medical Society met in Carrollton, on November 10, 1932 at 10 a. m. The meeting was called to order by Dr. L. B. Holmes, President.

The following members were present: A. C. Weekly, L. A. Turner, T. J. McMurry, W. E. Morris and E. B. Smith from Shelby County; K. S. McBee, George Purdy, A. E. Threlkeld from Owen County; B. F. Zimmerman, W. E. Gardner, A. Guiglia, Owsley Grant, Morris Flexner, Guy Grisby, H. H. Hogan, L. W. Frank, D. Y. Keith, J. Kenneth Hutchison, Misch Casper and E. S. Allen, L. Ray Ellars, Wm. E. Summerville, Jethra Hancock, G. S. Harel from Jefferson County; Dr. Menefee from Kenton County; B. L. Holmes, J. B. Ryan, E. B. Driskell, D. G. Pryor, A. Donaldson from Carroll County; Luther F. Beetem from Trimble County, J. S. Brown from Gallatin County; A. G. Elliston, A. P. Dowden, O. B. Humston, R. W. Porter, W. W. Leslie, F. D. Hancock, O. P. Chapman and Owen Carroll from Henry County.

The first paper was read by A. C. Weakly of Shelby County, subject: "Appendicitis from the General Practitioners Standpoint." Paper was discussed by Guy Grisby, Morris Flexner, H. H. Hogan, B. F. Zimmerman, George Purdy, L. Ray Ellars, B. K. Menefee and E. S. Allen, discussion closed by Dr. Weakly.

The second paper was read by Morris Flexner of Louisville, subject: "Erysipelas, With Report of Unusual Case," discussed by B. F. Zimmerman, Wallace Frank, Owsley Grant, E. B. Smith and closed by Dr. Flexner.

At this time motion was made and carried that the President appoint a nominating committee to suggest officers for the ensuing year. The following committee was appointed: W. E. Gardner, O. P. Chapman and J. B. Ryan. Committee to report after the last paper was read.

The last paper was read by L. Ray Ellars, subject: "Differential Diagnosis and Handling of the Acute Abdomen." Paper was discussed by Wallace Frank, B. F. Zimmerman, Misch Casper and closed by Dr. Ellars.

The Nominating Committee appointed by the President made the following nominations for officers and same was unanimously accepted by the Society and the following officers were, by motion, elected by the casting of one ballot by the Secretary. George Purdy, New Liberty, President; E. B. Smith, Shelbyvile, Vice-President; Owen Carroll, New Castle, Secretary. The above officers are to take their offices in May, 1933.

The meeting adjourned to meet in May, 1933 at a date to be selected by the officers and each Secretary of the Counties composing the Fifth District will be notified.

A rising vote of thanks was extended to the owners of the Theater building where the meeting is held, same being put at the disposal of the Society without cost.

OWEN CARROLL, Secretary.

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**Oldham:** At the annual meeting of the Oldham County Medical Society the following officers were elected for the ensuing year.

H. B. Blaydes, President.
J. T. Walsh, Secretary.
S. J. Smith, Delegate.

After several discussions of intresting cases and a plan for the meetings during 1933 proposed the society adjourned.

J. T. WALSH, Secretary.

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**Madison:** The annual meeting of Madison County Medical Society, was held December 15, 1932, in dining room of Glyndon Hotel, a number of doctors, wives and friends enjoyed a good dinner, after dinner had been served and the ladies retired, a business meeting was held with the following officers elected for 1933.

J. D. Farris, President.
John Blevins, Vice-President.
J. G. Bosley, Secretary-Treasurer.
A. F. Cornelius, Delegate.

Appointed by president: Censors: J. H. Rutledge, J. T. Armstrong, R. M. Phelps.

Program Committee: J. D. Farris, J. B. Floyd, A. F. Cornelius.

The society adjourned at 9:15 P. M. to meet January 19, 1933, at 7:30 P. M. in office of Health Department, Postoffice Building. Drs. J. W. Armstrong and M. M. Robinson, will read papers on Influenza, general discussion, a full attendance is desired by the president.

J. G. BOSLEY, Secretary.

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**Jefferson:** The following is the program for the February meeting of the Jefferson County Medical Society.

**February 6th**

Clinical Pathologicial Conference.

**February 20th—Case Report**

Bacillary Dysentery, R. L. McCormack, M. D.

**Symposium on Leukemia**

1. Blood Picture in Leukemia, Gordon S. Buttorff, M. D.
2. Etiology and Pathology of Leukemia, W. H. Allen, M. D.
3. Clinical Picture of Leukemia, Herman Mahaffey, M. D.
4. Treatment of Leukemia, Frederick G. Speidel, M. D.

Discussion to be opened by Drs. Virgil E. Simpson and Joseph C. Bell.

I. T. FUGATE, President,
CHARLES M. EDELEN, Secretary.

---

**Jefferson:** The 673rd Stated Meeting of the Jefferson County Medical Society was held in the Kentucky Hotel on Monday evening, December 19th, 1932.

At the conclusion of a fraternal dinner, served to approximately 130 members, the meeting was called to order by the President, Dr. Guy Aud, at 8:15 P. M.

### Business Session

The minutes of previous meeting, December 5th, were read and approved.

### National Economy League

By unanimous consent, the privilege of the floor was extended to Mr. William C. Dabney, who, in a ten-minute address, outlined the purposes and aims of the League, and asked the support and co-operation of the Society and its individual members.

Reports of retiring officers and committees were submitted in the following order:

Retiring President, Dr. Guy Aud.
Retiring Secretary, Dr. Uly H. Smith.
Retiring Treasurer, Dr. J. Duffy Hancock.
Executive Committee, Dr. C. G. Forsee.
Committee on Legislation and Public Policy, Dr. G. A. Hendon.
Membership Committee, Dr. James H. Pritchett.
Committee on Case Reports, Dr. J. Murray Kinsman.
Program Committee, Dr. Joseph C. Bell.
Library Board, Dr. Oscar E. Bloch.
Committee on Necrology, Dr. R. Alexander Bate.

Upon motions duly made, seconded and carried, the above reports were ordered received and filed.

### Report of Judicial Council

Report of the Judicial Council, made by Dr. Virgil E. Simpson, included (in accordance with instructions of the Society at meeting December 5th) a digest of the essentials of the report of the Committee on the Cost of Medical Care together with the Council's recommendation concerning same.

Upon motion duly seconded and carried, it was ordered that the report of the Judicial Council be received, its recommendations approved, and that copies thereof be made available for publication in medical journals and in the public press, and that a copy be sent to the Journal of the American Medical Association.

It was further moved by Dr. Sherrill that a rising vote of thanks be extended to the members of the Judicial Council for their excellent work in preparing this report for the Society. Motion duly seconded and carried.

### Report of the Judicial Council of the Findings and Recommendations of the Committee On the Cost of Medical Care.

The desirability, even necessity, of organized and institutional care of the indigent sick is recognized, and such activities are now supported by physicians generally. The extension of public health service to care for such indigent sick, thereby relieving the medical profession of a long accustomed burden, is welcomed. The expansion of such public health service into the practice of medicine among those able and willing to provide medical care is believed to be inimical to the best interests of the public on the one hand, and the interests of medical science on the other.

The Council would remind the proponents of the Majority Report that the state of culture, appearance and well-being, which the American people now enjoy are the products of the American system of civilization. The enviable health records of this county have been achieved under the present system of medical practice. The Majority Report wants the cost of medical care put on a basis of insurance, or taxation, or both. And then, with its tongue in its cheek, piously hopes for the continuation of "medical service on an individual fee basis for those who prefer the present method." Analyzed, this merely means that a person is taxed for support of a governmental practice and then asked to pay fees out of his own funds. We believe that "the corporate practice of medicine, financed through its intermediate agencies, is uneconomic, that it stagnates individual initiative, fails to conserve the best interests of the patient, subjects the medical profession to exploitation, and makes its members hirelings. The country is now staggering under the load of governmental expense —national, state, county and municipal; we believe that the recommendation of the Majority Report would merely provide for a redistribution of the expense of medical care rather than actually reducing its cost.

Your Council also believes that the establishment of "Community Medical Centers" is too suggestive of mergers in the business world with their fetish of "mass production and centralized control" to fit into the practice of medicine. They disregard the fundamentals of medical practice, which means that such practice must be a personal service and that the patient must be the subject of medical care, not disease or economic groups. To control the vicious competition inevitable from such schemes, the Majority Report offers (1) organization of non-profit groups with community backing and control; (2) state regulation of finances: (3) the arbitration of difficulties by boards nominated in part by medical societies. The plan probably could not be carried into effect without governmental aid. That means governmental ownership of medical service. Governmental ownership connotes political interference. The idea that political interference would end or even solve existing difficulties is not reassuring.

The carrying of health insurance by an individual for the purpose of providing funds to meet the necessary cost of sickness of self or dependents is frugal and provident; it permits a choice of doctor and hospital, preserves personal relationships between patient and doctor and puts the responsibility for the care of the patient directly on the medical advisor. Insurance companies could sell such insurance at reasonable rates if the plan were adopted by the public at large. This is the only really satisfactory health insurance, permitting benefits to be paid in cash, but it meets with the disapproval of the Majority Report. Insurance schemes which encompass the making of contracts on behalf of its insured with individual doctors, or groups of doctors, invites destructive competition, insures demoralization of the medical profession by commercialism, makes unavoidable the loss of personal relationships, and inevitably makes hirelings of the members of the profession by subjecting them to the direction of big business controlled by laymen.

Contract practice is a form of voluntary health insurance which may offer some excuse for its existence in certain isolated communities, but as a general plan is merely a short road to commercialism of the practice of medicine. Compulsory health insurance has been tried in this country in the form of Workmen's Compensation Acts. The operation of such a scheme results in solicitation of contracts, laymen hiring and controlling doctors and the patient is deprived of the right of a choice of a medical attendant. The cost of such care must include overhead operating costs, plus the actual cost of medical care. The number of sick days per member is invariably increased by such plan, as it invites malingering. Your Council believes that the objections to contract practice are many, and its widespread, even pernicious, evils recognized as inherent in the system.

The Majority Report commends group practice. Your Council believes that group practice has not obtained in a distribution sufficiently national, nor on a scale adequately representative of the varied communal conditions of the country, to justify sound conclusions as to its value or its superiority over private practice. We would further remind you of the fact that the present system of medical practice gave rise to group practice, and its extension can go forward as rapidly as the public approves it. We would call your attention to the fact that group clinics do not constitute the ideal in medical practice. Duplication of equipment and facilities for each group in large communities results in a cost greater than community needs warrant. Restriction of freedom of junior members of such groups as to travel, study and leisure; the static nature of income, the disruption consequent upon death or retirement of an able man around whom the group was built, are obvious disadvantages.

Medical care is only one of a number of economic problems that must be solved. Nearly five times as much money was spent for food as for medical care, nearly four times as much for rent, and nearly three times as much for clothing. These are necessities even more than medical care. If medicine should be made a matter of governmental care, must not groceries, real estate and clothing bills be made likewise a governmental concern? Then, since law enforcement and maintenance of legal rights are necessities under our complex civilization, why not place the legal profession under governmental control? To worship is innate; the Church should be under governmental control. The logical end of such efforts would be governmental control of all of life's interests.

The members of the Majority Report manifest concern about the income of the lower one-third bracket of physicians, but keep a dry eye on the fact that its proposals would increase the income of that third at the expense of the other two-thirds. The present system of medical practice recognizes that in the profession there are one and five and ten-talent men, and provides a flexibility whereby ability may be rewarded. Success in medicine, unlike success in pure science, does not depend solely upon mental ability. It requires sympathy, imagination, tact, unselfishness, methodical habits, cheerfulness, with optimism and temperance to make up the traits and manners necessary for the finished product—a good doctor.

Your Council believes that the Majority Report of the Committee on the Cost of Medical Care is too visionary and too full of platitudes to be seriously considered by the American people; too revolutionary in its suggestions to be welcomed by ordinary people. We agree with the conclusions of one of the Minority Reports that the preliminary studies and recommendations of the Majority Report do not deal adequately with the fundamental economic questions which the Committee was formed to study and consider.

The Majority Report states that "the average costs of medical care varied with the incomes" of families studied. It is dissatisfied with this method of distribution of cost and advocates instead a plan whereby "when the smaller unit is economically unable to bear the entire burden, the larger unit must be ready to aid;" that "for communities with such low per capita income that the local funds are insufficient, financial aid is recommended;" that where a community is very poor "the Federal Government should enable the State and local governments to provide a basic minimum of good medical care;" that all means of taxation of Federal, State and local governments be used. In the raising of such taxes, those able to pay little, pay little; those able to pay more, pay more; and the rest must be raised by super-taxes levied on the wealthy. That is exactly what is being done now under the present system of practice, the difficulty being that governmental salaried appointees do now control the collection and expenditure of the funds. The doctors perform that task for themselves by statements rendered for services according to ability to pay. That the Government could not do the job as efficiently is evidenced by the millions of dollars returned annually to tax-payers from whom erroneous amounts have been collected through errors of Internal Revenue employes.

Your Council considers the wordy discussions of raising standards of education of specialists, of changing the fundamentals of undergraduate instruction, opportunity for post-graduate study and exchange of experiences, and the number and type of practitioners trained, as the preachments of members of the Committee who wrote the Majority Report who are familiar only with the academic approach to the practice of medicine. Your Council finds itself unwilling to agree with the recommendation that "Coordination of medical service should be put into effect in cities, counties and states" through committees composed of laymen, representatives of health centers,health councils, community chests, health boards, and a few doctors. If changes are needed in local communities, the plan should be under the direction of County Medical Societies. The County Society is the unit of medical organization; it is familiar with local conditions; the services of its members is the only absolute necessity in any plan for rendering medical care.

Virgil E. Simpson, M. D., Chairman
A. L. Bass, M. D.,
D. Y. Keith, M D.,
Chas. H. Moore, M. D.,
Walter Dean, M. D.,
L. Lyne Smith, M. D.

### Election of Officers for 1933

The following officers were elected to serve for the ensuing year.

President, Dr. I. T. Fugate.

First Vice-President, Dr. Lee Palmer.

Second Vice-President, Dr. Walter I. Hume.

Secretary, Dr. Charles M. Edelen (for unexpired term of Dr. Uly H. Smith)

Treasurer, Dr. O. R. Reesor.

Executive Committee, Dr. Guy Aud.

Judicial Council, Dr. James S. Lutz, (term expires 1935).

Judicial Council, Dr. Frank M. Stites (term expires 1935)

It was moved by Dr. A. T. McCormack that the Society express to the Retiring President, and other officers and committees of the Society, its congratulations upon a successful administration during the past year. Motion duly seconded and carried.

The Society adjourned at 10:30 P. M.

CHARLES M. EDELEN, Secretary.

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# KENTUCKY MEDICAL JOURNAL

Published Monthly by the Kentucky State Medical Association Under the Supervision of the Council

VOL. 31. No. 3 BOWLING GREEN, KY., MARCH, 1933

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# KENTUCKY MEDICAL JOURNAL

BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

**Published Under the Auspices of the Council**

VOL. 31 No. 3 BOWLING GREEN, KY. MARCH, 1933

## FRIENDSHIP

"The greatest business in all the world
Is that of making friends.
In fact, no business on the street
Pays bigger dividends.
For life is more than stocks and bonds;
And love than rate per cent;
And he who gives in friendship's name
Will reap as he has spent.
Life is the great investment,
And no man lives in vain
Who guards all of his friendship
As a miser would his gain.
Then give to the world a welcome
Each day whate'er it sends,
And may no mortgage e'er forclose
Our partnership as friends."

---

## THE COMMITTEE ON THE COST OF MEDICAL CARE

The Council held an all-day session in Louisville on January 19th and the chief subject for consideration was the Report of the Committee on the Cost of Medical Care. As might have been anticipated, the Council arrived at no conclusion on this important subject. It was decided to request each County Society in the State to carefully study the subject with reference to its own problem. If any County Society thinks there is any action which is necessary by the State Association, they are requested to instruct their delegates to this effect.

The Report of the Committee is largely fact-finding. In sociological procedures revolutions are rare. The recommendations in this Report are merely recognitions of social trends. It is to be expected that the older and more successful ones amongst us desire no change from the present conditions and procedures which we feel are satisfactory to us and our people, and that the younger or the unsuccessful would view with favor any change that would promote their own and the public interest. It seems to us that it is important that we preserve those desirable features of medical practice that have grown up with the United States. As far as we are able to ascertain, there is practically no physician in Kentucky who favors the State control of the practice of medicine in any way, shape or form. We are unanimous in our desire that the confidential and personal relationship between physician and patient shall be kept inviolate; in a belief that the free choice of its physician by every family is an inalienable right. We feel that it is an obligation of the organized profession to provide any community which needs medical service or definitely demonstrates a need for additional medical service, this service when assurance is given that adequate support for intelligent modern practice will be provided by those who will benefit from it.

In a number of other states careful investigations are being made and experiments are under way as to plans of group practice by county societies in the smaller counties and by clinics, carefully controlled by the profession, in the large ones. For the present we venture to suggest that most of these experiments be continued in other states. In doing this we realize the inadequacy of medical service in many sections of this State, which are unable economically to support not only medical service but other services almost equally essential to life and happiness. When and if it is demonstrated elsewhere that there are methods of organization that will be desirable for us it will be easy for us to adopt or adapt them.

It is important that the specialty of preventive medicine be recognized in exactly the same relationship with the general practice of our art as are other specialties. Under no circumstances should the health officer practice medicine except in the rare emergencies when no other physician is available. The health officer should develop, through public health education, an increasing demand for medical service of every type and he should constantly strive to increase public confidence in the profession. As rapidly as the profession will prepare itself for the practice of preventive medicine in every family in the community, health departments will relinquish all procedures in preventive medicine that can best be done by the family physician. This same procedure should be adopted by other specialties. Ninety per cent of all ailments should be cared for by the family physician and those of us who are specialists who, in any way, deprecate the value of the services of the family physician are helping to add immeasurably to the difficulties of medical service.

There is no place in the practice of medicine for a secret division of fees. No honorable specialist will split fees and no honorable practitioner will receive them. Every man who limits his practice to a specialty should help to educate the public as to the necessity of the adequate support of the properly qualified family physician and should make his charges adequate and reasonable for the service he renders, and the general practitioner should do likewise.

We trust that every physician in Kentucky will read the Report of the Committee on the Cost of Medical Care over several times. Each re-reading gives facts for careful consideration. After awhile, when we have had time to get all of the principles in mind, it will be well for us to make careful studies of the economic conditions surrounding medical service in each of our counties and in the State as a whole.

At first we had hoped that we might submit a primary consideration of this whole problem in this issue of the JOURNAL. Most of our members have informed us that they feel that such consideration at this time would be premature; so, from time to time, we will write the thoughts of those who desire to express them, and, in the meantime, will keep our powder dry so as to be prepared for mature and deliberate consideration of procedures that will give our great profession better opportunities to be of greater service to the people of our Commonwealth.

## TRAINING SCHOOLS IN SMALL HOSPITALS

On another page of the JOURNAL we are publishing a thoughtful communication from Doctor John W. Scott of Lexington, addressed to the Secretary of the State Board of Nurses Examiners. We feel that this communication is worthy of the consideration of every member of the profession in Kentucky.

Of course, the medical profession realizes the desire of the nurses for autonomy and for proper self-determination as to their standards, qualifications and policies. We are conscious of exactly the same attitude on the part of our own profession in regard to its self-control. But both professions must realize not only their interdependence but also the public interest involved. The older ones amongst us recall the time, only a few decades ago, when there were no trained nurses available. We realize and appreciate the tremendous service they give both to the sick and to us in the assurance of the continuous scientific, sympathetic care with which our instructions are administered to our patients.

It is evident to all who study the question that there are too many physicians and nurses in most of our centers of population. The problem of their proper distribution, however, cannot be solved by continuing to train the vast majority of our under-graduates for urban service in these larger centers.

Doctor Scott's suggestions merit careful consideration. We feel sure that the Board of Nurses Examiners will give them just this, and that we shall continue to have their sincere co-operation in the welfare of the public and of our two professions.

## POSTGRADUATE OBSTETRICAL LECTURES

Arrangements have been made for a series of postgraduate lecture courses, at different points in Kentucky, by Dr. J. R. McCord, Professor of Obstetrics, Emory University, Atlanta, Georgia.

The first of this series, seven in number, will be delivered in Louisville, April 3-7, in the amphitheater at the City Hospital. The lectures will be given on five consecutive afternoons, between two and five o'clock. All physicians in surrounding counties are cordially invited to attend by the Jefferson County Medical Society, which is sponsoring the course.

On the evening of March 20th, Dr. McCord will speak at the regular meeting of the Jefferson County Medical Society, as a guest of the Louisville Gynecological and Obstetrical Society.

On April 17-21, Dr. McCord will give the second of his series of lectures in Paducah, under the auspices of the McCracken County Medical Society. It is expected that these lectures will be well attended by physicians from western Kentucky.

The other five courses of the series will be given by Dr. McCord on June 26, July 10 July 24, August 7 and August 21, respectively. Definite places have not yet been selected, but will be announced later.

We feel that Kentucky physicians are extremely fortunate, at this time of economic stress, in having brought to them an unexcelled opportunity for up-to-date postgraduate instruction, without the expense of a trip away from home.

Dr. McCord's lectures are financed by the United States Children's Bureau, and are offered to local medical societies through the Kentucky Medical Association and the State Board of Health.

## A BARREL OF APPLES

"One bad apple can spoil the barrel,' says an old proverb. A case of tuberculosis may, from the public health viewpoint, be like that bad apple—the disease tends to spread from him who has it to those with whom he lives.

But the spread of this disease can be prevented. How? By examining every person who has been in close contact with a case. This means not only medical examination of adults, but also of children. With the aid of the tuberculin test and the x-ray it is now possible to discover if a person is infected, and if so, how much damage, if any, has been done. If any danger signals are discovered, much can be done to prevent the development of actual disease.

One difficulty is that tuberculosis usually develops slowly. Months or even years may pass before the ymptoms become troublesome enough to drive the patient to the family doctor. Meantime other members of the family may have become infected. People need to be reminded that "that tired feeling," or the "cough that hangs on," or certain other symptoms may be due to tuberculosis and should be investigated by a doctor.

To accomplish this, the National Tuberculosis Association and its 2084 affiliated associations throughout the United States conduct each year an "Early Diagnosis Campaign," during which they seek to focus attention upon a single phase of tuberculosis, which still kills more persons between the ages of 15 and 45 than any other disease. This campaign is carried on in Kentucky by the Kentucky Tuberculosis Association in cooperation with the State Board of Health of Kentucky and local health departments aided by many official and non-official agencies.

This year the campaign begins on April 1 and will ask the public "From Whom Did He Get It? To Whom Did He Give It?" These suggestive questions will be pointed up by the slogan "Examine and Protect Every Contact?"

In numerous ways persons will be helped to find out if they have the disease, to secure proper treatment, and to learn to protect others. Emphasis will be laid on the danger of the disease to children and the necessity of examining them with the tuberculin test and the x-ray. Because of the economic stress it is all the more necessary to build our defenses against the enemy, who strikes when resistance is low.

Physicians, health officers, public health nurses, social workers, civic groups and community leaders will participate. Insurance companies, employers, business organizations and others can help. Readers of the JOURNAL are urged, as a matter of personal and family health protection, to give serious thought to the information and advice that will be given widespread circulation during this campaign, and where such a step is indicated, the family doctor should be consulted promptly for a medical examination.

The physicians of Kentucky should be enthusiastic over this opportunity to render such outstanding service to their people. No physician should be satisfied until all contacts of tuberculous people are examined and protected. This service is vital in Tuberculosis control.

## THE SOUTHEASTERN SURGICAL CONGRESS

Th members of the Kentucky State Medical Association are cordially invited to attend the meeting of the Southeastern Surgical Congress which will be held at Atlanta, Georgia at the Biltmore Hotel March 6th to 8th. The leading surgeons and internists of America will appear upon the program. The complete program can be obtained by writing to Dr. B. T. Beasley, Doctors Building, Atlanta, Ga.

## OUR ADVERTISERS

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During the years of prosperity we did not increase our advertising rates; so, in these days of adversity, we can not reduce them without correspondingly reducing space available for reading matter.

We are, therefore, urging all member physicians to read the advertising pages of the JOURNAL and to give their patronage, whereever and whenever practicalbe, to the dealers and manufacturers who have so generously supported our publication. It is only through such patronage of our advertisers by members of the profession that we can hope to continue the JOURNAL in its present size and, so, be able to take care of all the worthwhile material submitted for publication.

## ORIGINAL ARTICLES

# CAROTINEMIA OR XANTHOSIS*

WINSTON U. RUTLEDGE, M. D.
Louisville.

In recent years an entirely new field of medical and nutritional problems has arisen through the recognition of the important role played by those potent substances which, for want of a better name, we have classed as Vitamins. Little of their chemical or physical make-up is known as yet and the discovery of their existence was largely brought about through the recognition of their absence.

However, our recent control of rickets, scurvy, beriberi, xerophthalmia and other similar diseases, attest their importance to our physical economy, and each new year adds more to our knowledge concerning them. Perhaps one of the most important facts which has been brought out lately relative to them, is the part played by the lipochrome pigment, carotene, which appears to function as a pro-vitamin, and with Cod Liver Oil, provides one of the most important sources of Vitamin A.

The case I am presenting is of interest, not only because of its relative infrequency and the possibilities for confusing it with jaundice and other diseases, but also because of the recently recognized relationship existing between the pigmentation responsible for it and this growth promoting, infection resisting and anti-xerophthalmic Vitamin.

In brief, the summary of the case is as follows: Mr. F. M., white, age twenty-three, was referred to me a year ago for a severe type of acne involving his face and back, and which had been present for about nine years. He gave no history of any serious illness, operation or injury, aside from an automobile accident five years ago which left him very nervous, and an operation for hernia a short while later which was followed by a two month's period of jaundice. There was no history of any other attack of jaundice before or after that one. He had suffered from chronic constipation from childhood in spite of a well balanced diet and an occupation which kept him walking out of doors most of the time.

Physicial examination showed him to be a tall, well developed but poorly nourished boy. His skin appeared sallow, but there was no suggestion of an icteric tint about it or his sclera. His other physical findings were essentially negative and an analysis of his urine showed it to be normal.

During the next seven months while under my care, his acne gradually cleared up and his general physical make-up improved. About the middle of April, (six months ago), he came in complaining of jaundice, and inspection showed a definite yellow tint to his face and hands. Assuming that to be his condition, I advised him as to his diet, rest and elimination. Two weeks later, he returned and I noticed that the yellow discoloration of the skin of his face and hands had deepened considerably but his sclera appeared perfectly white. He stated that in the previous month his bowels had been about as regular as ordinarily, that he had never noticed his stools to be clay colored, and that his skin had not itched, but he complained of feeling a little more tired than usual. It was interesting to note that coincidental with the development of this pigmentation, his acne had practically disappeared.

On questioning him I found that for the previous two or three months, his daily diet had consisted of two eggs, one quart of milk, one small helping of meat and large quantities of kale, lettuce, spinach and carrots. In addition to the cooked carrots, he ate from two to six raw carrots every day.

Examination showed that the skin of his face and neck as far down as the clavicles was a yellowish, orange color, a little more pronounced about the nasolabial folds than elsewhere. The same color, though a little less intense, involved the back of his hands and faded gradually above the wrists. The calloused areas on his palms and soles were also a deeper orange color than the surrounding pigmented skin. The mucous membranes were a normal pink except over the hard and soft palates where they had a pronounced yellowish tinge. The skin on the rest of his body had a faint lemon colored cast, but there were no excoriated marks on it such as are often seen in jaundiced patients. There was no tenderness in the right upper quadrant and his liver and spleen were not palpable.

A urinalysis done at that time was normal and tests for biliary pigments in the urine showed them to be absent. His blood count was:

| | |
|---|---|
| Hgb | 85% |
| R. B. C. | 4,300,000 |
| W. B. C. | 7,400 |
| Differential: | |
| Polys | 65% |
| Small L | 25% |
| Large L | 7% |
| Eosinophiles | 2% |
| Baso | 1% |

A blood chemistry run by Dr. Clyde McNeil showed a blood cholesterol of 163 mgs. per 100 c. c. Blood sugar, (3 hours P. C.), 105 mgs., bile index 18, van den Bergh, negative. Wassermann test by the Kolmer method was negative. The blood serum was a pronounced lemon yellow color, and when it was tested for carotene, gave a strongly positive reaction. That test is performed as follows:

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*Read before the Kentucky State Medical Association at Louisville, October 3-6, 1932.

"To 5 cc of blood plasma is added enough plaster of Paris to make a thick paste. To this is added 5 cc of a 95% solution of ethyl alcohol. This mixture is shaken a few minutes to precipitate the proteins. An equal volume, (5 cc), of petroleum ether is then added. The mixture is shaken ten minutes and then centrifuged. The caritonoid pigments if present, will be dissolved in the ether, giving it a yellow color, the other blood pigments, especially bile, remain in the alcohol fraction. The success of this test depends upon two properties of this lipochrome pigment, namely, its solubility in concentrated alcohol and petroleum ether and its failure to be absorbed in calcium carbonate. In quantitative work, the color of the petroleum ether fraction is compared in a colorimeter with a solution of oleic acid in petroleum ether or with a solution of potassium dichromate.

The following autochromes which Dr. McNeil prepared for me may give you some idea of the appearance of the patient's face and also color of the petroleum ether fraction of the test. Attempts to photograph the striking discoloration of his hands were not satisfactory.

For two weeks while studying the case, I advised the patient to continue on exactly the same diet he had been taking and at the end of that time I could make out no appreciable change in his color. After that I told him to eliminate carrots, eggs, oranges, kale and spinach completely, and cream and butter as far as possible from his food. In the past four months while on this restricted diet, the pigmentation of his skin has not noticeably decreased but the concentration of carotene in the blood serum has markedly diminished although it is still present in quantities larger than normal.

Almost one hundred years ago, Wachenroder isolated a crystalline lipoid substance from carrots, Arnaud, described carotene pigment in 1885, but it remained for Palmer and Eckles, to identify the plant pigment carotene, and demonstrate it to be the chief pigment responsible for the color of butter fat and beef serum. Perhaps the first cases recorded in which this pigment caused a discoloration of the human skin were reported under the name of aurantiasis cutis by a Japanese physician, Baelz, in 1896, as occurring in natives whose diet contained an abundance of oranges and yellow squash. He gave it this name because of the golden yellow color which their skins developed. The pigmentation in these cases was subsequently determined by other Japanese workers to be due to carotene.

Von Noorden, in 1904 discovered a similar condition occurring among his diabetic patients, and called it xanthosis diabetica. In 1908, Moro, noted the same type of pigmentation among infants whose diet contained carrots, but it was not until eleven years later that Solomon, discovered the pseudo icterus of non diabetic patients to have the same origin as the xanthosis diabetica of Von Noorden. At the same time he showed that the lipochrome pigment might be present in the blood without causing any pigmentation of the skin. The first condition he called xanthemia and the latter, xanthosis.

In 1913, van den Bergh and Snapper, showed that the yellow pigment seen in such cases was due to an excess of the lipochromes and not bilirubin circulating in the blood. These cases do, however, show a high icteric index due to the discoloration of the blood serum with carotene, and recently Boeck and Yater, have shown the lipochrome index to be about 40% of the bile index.

In 1919, Hess and Meyers, in this country, collected a number of cases of this condition occurring in infants and young children, and gave to it the name of carotinemia, and the same year, Burger and Reinhart, by means of the spectroscope, identified carotene and xanthophyll in the blood serum of nine diabetic patients who were on a diet containing much green kale and spinach.

Hess and Meyers were able to produce carotinemia in infants by feeding them two oranges, an egg, or two ounces of spinach daily for one month, but this pigment rapidly disappeared when these substances were removed from their diet. They, like others, noted an individual variation in the susceptibility of the blood serum to accumulate this pigment. In adults, the condition may persist for some time; Graham Little, having presented such a case under the name of dyschromia in which the pigmentation on the palms and soles persisted for four years.

Most of the cases of carotinemia have occurred in children of diabetics, but recently Green and Blackford, Levine and Silvers, Boeck and Yater, and others, have reported cases occurring in non diabetic adults.

The lipochrome pigments, so-called because of their association with lipoid substances include carotene, xanthophyll and lycopin. They occur chiefly in oranges, (strangely not in lemons), carrots, pumpkins, yellow squash, tomatoes, spinach, lettuce, beans, kale, butter fat and eggs. Lycopin, an isomer of carotene, occurs chiefly in tomatoes, while xanthophyll is found in the greatest abundance in egg yolk, and in the skin and fat of chickens.

Carotene, in the purified state, is a yellowish red, tasteless and odorless substance. Chemically it is an unsatuated, hydrocarbon ($C_{40}$ $H_{56}$), soluble only in strong lipoid solvents. It is relatively inert but has a strong affinity for oxygen and the halogens. Oxidation bleaches it completely. It is non-toxic, non-diffusible and slowly absorbable, and is present to the extent of about two grams per one hundred pounds of carrots. Its harmless nature has been shown by Wells and Hedenburg, who injected large quantities of it intra-peritoneally into guinea pigs, and Hess and Meyers who injected it sub-cutaneously into infants without any ill effects.

The carotene pigment passes through the stomach unchanged and is absorbed in the small intestines and excreted largely in the feces, though it has been demonstrated in small quantities in the urine, sebum and sweat. Ansai, working with white rats, found it was excreted by the sweat and then absorbed by the horny layers of the skin. In colors and bovine fat, milk and blood serum, while on the other hand, the colorless fat of swine, sheep and goats is due to its absence. It is also present in the human liver, adrenals and corpus luteum.

Experiments have shown that the carotene content of the blood is not constant and that it may be caused to rise slightly after the ingestion of large quantities of carotene in olive oil. In spite of the relatively infrequency of cases in which the carotene concentration of the blood becomes sufficiently high to cause the secondary skin pigmentation, recent work has shown that xanthemia probably occurs very frequently though usually unrecognized. Rabinowitch, reported fifty-nine cases of xanthosis among fourteen hundred diabetic patients, while later he found in the study of five hundred random diabetics, that they all had more carotene in their blood than normal. Boeck and Yater, found that in one hundred cases of diabetes, 86% showed xanthemia without any skin pigmentation, in fifty-three cases who had diseases other than diabetes, he found xanthemia occurring in 100% of the cases with renal disease, in 69% of the cases with hepatic disease, and 89% of the cases with other diseases. In this same study of thirty-six cases of xanthosis, he reported that 9% had diabetes and 9% associated renal disease. This summary, though small, shows the high percentage of cases in which abnormal amounts of lipochrome pigments are present in the blood without causing any demonstrable skin pigmentation. Why an excess of lipochrome pigment should be present in the blood of some and not in others, is still a subject of considerable conjecture.

Its occurrence in diabetics and in obese children, as reported by Klose, led to the supposition that it was in some way associated with faulty fat metabolism. On the other hand, Ryhiner, found poorly nourished infants most commonly affected. Hashimoto was of the opinion that: "Individual variations in the intensity of the skin secretions or in the thickness of the epidermis, rather than any metabolic disturbance, was responsible for the dermal pigmentation." The observations of Boeck and Yater, that it occurs as frequently in nephrities as diabetics, led them to conclude that failure to excrete the pigment was probably an important factor in its production.

Perhaps a more generally accepted explanation for this condition lies in faulty oxidation in the body. Palmer, in 1922, showed that oxidation accounts for the normal disappearance of these pigments in both plants and animals. Head and Johnson pointed out that faulty oxidation of the tissues occurs in diabetics. Stannus reported a marked case of carotinemia associated with myxoedema. In both malnutrition cases and old age, oxidation in the tissues we know is reduced and the occurrance of this pigmentation in these cases may thus be explained. Wells has stated that the deeply colored fat seen in persons in advanced years is due to an accumulation of these pigments. Monceaux explains his cases of xanthosis seen in pulmonary tuberculosis patients on the basis of hypo-oxidation. The basal metabolism of premature infants is often low and herein may lie an explanation for some of the cases of icterus neonatorum which are in reality xanthosis. Finally, in Addison's disease, where the basal metabolism may become as low as—20, it seems possible that the melanotic pigmentation may be intensified by the presence of additional lipochromes.

Until 1929, the vital significance of carotene in relation to human and animal physiology was not established. It was supposed to be an inert, harmless substance, which at times accumulated in excessive quantities in the body, but which, aside from the color it produced, had no further function. However, Bendes, in 1926, reported a practical application of this condition as an aid in heliotherapy in tubercular children. By darkening the skin of his blond patients by a vegetable diet before exposing them to the sun, it facilitated their tanning, whereas before the diet, they had blistered and pealed and did not become pigmented.

As far back as 1920, Rosenheim and Drummond, stated that in the animal kingdom, there was evidence to show that the animal makes every effort to supply carotinoids to its progeny, and they pointed out at that time, the close association existing between the lipochromes and fat soluable Vitamin A in many of their chemical reactions. Following this report, subsequent work by Drummond and Coward, and others, showed that purified crystalline carotene was ineffective when supplied to rats as the sole source of the fat soluble Vitamin A, but a later paper by the von Eulers and Hellstron, emphasized the fact that the earlier works on this subject took place before the separate existence of A and D Vitamins was recognized, and that the apparent failure of carotene was probably due to the associated absence of Vitamin D from the diet. Correcting this deficiency, in subsequent experiments, they showed that on a basal diet, those rats deprived of all Vitamin A until symptoms of avitaminosis appeared, showed a rapid resumption in their normal growth on doses of cystalline carotene as low as .005 mgs. per rat per day. However, apart from such biologic evidence that a definite relationship existed between these substances the exact connection remained a mystery until Moore, working with rats, and subsequent work by Capper, McKibbin and Prentice, on fowls, demonstrated through a spectroscopic study of the absorption bands of these two substances and their color reaction, to antimony trichloride, that the ingested carotene was converted into Vitamin A by the liver and the excess of this Vitamin stored there against future needs. From these experiments and other similar ones, we may conclude that carotene is synthesized in plants and is subsequently eaten by man and animals. It is absorbed unchanged from the stomach and intestines and is converted by hepatic enzymatic activity into Vitamin A and stored chiefly in the liver. It is interesting to note that by the same type of experiments, xanthophyll has been eliminated as a possible source of Vitamin A.

### CONCLUSIONS

This paper presents the report of a case of carotinemia occurring in a non-diabetic adult, followed by a discussion of the possible causes of the pigment, the diseases with which it may be confused and of the relationship recently discovered to exist between the causative pigment, carotene, and Vitamin A.

### DISCUSSION

**Arthur T. McCormack**, Louisville: Permit me to say I am glad they named it after carrots. I never did like them anyhow. There are several other articles of diet that seem to be incriminated also, but so far as I am concerned it gives me a perfectly good excuse for discarding carrots. Spinach seems to be in the same classification. As far as doctors are concerned you are not compelled to eat those any more unless you want to be sunburned.

This is the sort of subject that is particularly interesting because this is absolutely new thought and new suggestion to us. It is the application of the complicated modern scientific method of the diagnosis of conditions that we have not even been suspicious about.

I recall very distinctly seeing a case of this sort thirty years ago. I sent him to everybody that I thought ought to know something about the subject. Nobody had the slightest suspicion what the condition was. I made the diagnosis this morning. Unfortunately the patient had died a good many years ago of something else and it won't do him much good, but for my historical benefit it does me good and it is a satisfaction to know that we are solving these complicated problems gradually. The important thing is that through such meetings as this and through our Journal we are keeping up with the progress of events and we are filling in the vacant or blank pages in our knowledge constantly and are getting somewhere.

I think we owe Dr. Rutledge a debt of gratitude this morning as he opens another page and puts the print on it instead of leaving it blank.

**Leon L. Solomon**, Louisville: I think the splendid paper of Dr. Rutledge helps to bear out what was said the other night by Dr. Howard Kelly, in his public address before the Society, Dr. Kelly emphasized the fact that more had been accomplished in medicine in the last 25 to 50 years than had previously been accomplished in centuries. Such a paper as this one, presented by a highly trained specialist, serves to make State Medical Society meetings interesting to the mixed group of men composing our organization. Many physicians, myself included, are unfamiliar with the subject under consideration. In an illuminating manner, there is brought to us information which would require many hours of study. I feel indebted to my friend, Dr. Rutledge, for having presented the unique paper.

**L. H. South**, Louisville: The laboratories of the State Board of Health make this test, but it really belongs to duties of the private laboratories. If you have a suspected case the State Board of Health will be delighted to help you out in the diagnosis.

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**Effect of Exercise on Colonic Motility.**—The effects of short periods of strenuous treatment running on the motility of the colon of dogs completely recovered from appropriate surgical intervention were recorded by DeYoung and his associates by the balloon method in a series of nine dogs. It was found that during an exercise period there is in a majority of cases a marked rise in colonic tone and motility. The rise is not coextensive with the running period. It begins usually from one to three minutes after the start of exercise and recedes after a few minutes without reference to the duration of exercise.

## REPORT OF CASE—BRONCHIECTASIS*

JAMES W. SCUDDER, M. D.
Liberty.

In the fall of 1930, during inspection of schools, we found a little girl at home, supposed to be suffering from pulmonary tuberculosis. This opinion held by parents and teacher because of cough and expectoration. Family was advised to get the child in hospital for observation and treatment. On December 31, 1930 she was admitted to the Children's Free Hospital in this city. The following is a part of the report of a resident physician:

There was no famiy history of tuberculosis either on the maternal or paternal side. The history dates back to the age of six weeks, at which time the child had an attack of whooping cough. The cough persisted until the age of three years, at this time the child had an attack of influenza, following which she had cough and began to expectorate large amounts of foul smelling green sputum. At the age of six years x-rays of chest were made and the parents were told that the trouble was in the bronchial tubes and that there was no tuberculous infection. Sputum exams were negative. For several years preceding admittance she had had hemoptysis. At admittance her temperature, pulse and respiration were normal. Examination revealed a well developed and nourished female age nine years. She was not acutely ill, she was intelligent and cooperative. Head was normal; eyes, ears, nose essentially negative. Tonsils had been removed and uvula was absent. Chest showed dullness in the right base posteriorly sounds were tubular in both bases, posteriorly. There were rales in the right base posteriorly and scattered rales over both lungs. Whispered voice sounds were increased in right base posteriorly. Heart was normal, abdomen negative, extremities negative except for clubbing, diagnosed bronchiectasis and pulmomary tuberculosis. The urine on admittance was normal, blood Wassermann was negative, the R. B. C. 4,900,000, W. B. C. 9,900, H. G. B. 80%, Polys 78, Lymphs 20% and large monos 2%, sputum repeatedly negative for tuberculosis. O. T. tests negative 1 to 1,000. X-ray showed increased density in the bronchial markings on the right. On January 26th, bronchoscopy showed all the bronchi filled with pus.

Treatment in the hospital was symptomatic with postural drainage. She raised moderate amounts of sputum for the first three weeks. Temperature fluctuated from 98 to 100.5 F. On January 25th, her temperature rose from 100.3 F. and the patient was found to have acute pharyngitis. On February 2nd, temperature became normal and remained so until February 26th, at which time it began to rise. Three days later the child had headache, conjunctivitis and a rash. She was diagnosed Measles and transferred to City Hospital on March 16th. After an uneventful recovery from Measles she was placed on Pediatric Ward at City Hospital for further study.

X-ray on March 17th showed marking in both roots extending well into the lung field on the rib and into the base on the left suggestive of bronchiectasis. Several lipiodol injections were unsuccessfully attempted. On April 29th, however, a small amount was shown in the lower bronchial tree, appearance characteristic bronchiectasis. On May 20th to June 4th patient received treatment consisting of Ethyl Iodide inhalation, 1 cc per day. Also during her stay in hospital she continued to receive postural drainage. She raised 1 to 1½ oz. of sputum daily. X-ray taken on May 20th showed some clearing up of the lung fields. Patient continued to improve every day and on July 7th was discharged in good condition.

Child is still gaining in weight, suffers very little inconvenience on exercise, is in attendance at school, with attention being paid to diet and exercise. She is living the life of an apparently healthy and normal girl of her age. Since leaving hospital, she has had practically no treatment. Practicing postural drainage is required.

### DISCUSSION

**Paul A. Turner**, Louisville: Dr. Scudder has reported a case with a favorable termination, which is quite rare in the treatment of even a child with bronchiectasis under medical treatment alone. I had hoped that I would have more time in discussing this paper. In three minutes I can tell you practically nothing about the subject. It is very important because of the fact that bronchiectasis is probably, next to tuberculosis, one of the most common things that we find in the lung. It is unrecognized to a large extent. I wish that I could go through the whole history of this disease, but I just cannot do it.

First I want to tell you that bronchiectasis practically always is associated with sinus trouble. If the doctors that are treating children will make as careful examination of the sinuses and clear them up as they do the ear in infectious diseases in childhood, there will be very much less bronchiectasis.

This disease usually occurs in childhood, and lasts ordinarily for years and years. They may go along for quite a period of time without any symptoms at all. Then with some intercurrent infection suddenly they will begin to cough and spit up large quantities of sputum. As time goes on, certain of these cases get to be a nuisance, not only to their friends but to themselves as well, and if they get to that stage you might just as well turn them over to the surgeon for a radical operation because they want to die anyhow.

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*Read before the Kentucky State Medical Association at Louisville. October 3-6, 1932.

I can say only a few words about the treatment. The medical treatment is usually of no avail. Sometimes in making the diagnosis of bronchiectasis, lipiodol is used, and certain favorable results may be obtained by the washing of the bronchiectasis with the repeated injection of lipiodol. In the diagnosis lipiodol is really essential for us in connection with the x-ray, and then you absolutely know what condition you are dealing with.

In the further treatment, postural drainage, as Dr. Scudder mentioned, is essential. It usually relieves the condition somewhat. Medication put into the bronchus itself does not as a rule give very favorable results. Then what are you going to do? In my experience I believe that especially in children phrenic exoresis gives the best results. I have had cases, particularly in children, that were very much relieved of their symptoms when the phrenic nerve, if it was a unilateral case, was evulsed. I should say perhaps fifty per cent were relieved and all of them were benefitted. I have done phrenic exoresis on both sides in bilateral cases with very marked benefit to the patient.

**B. S. Rutherford**, Bowling Green: To what extent does it interfere as a usual thing with the health of the individual? I have been told that I have this trouble. I have had a cough for thirty-five years. I am as healthy a man as there is in the house. I am seventy years old, and I want to say to Dr. Turner I am not nearly ready to turn myself over to the surgeon. My health is not impaired by it whatever. In fact, I am not sure that I have it. I have coughed until I rather enjoy it, and I am lonesome if I don't cough. I had a rib broken six or eight years ago, and if any of you have ever had a rib broken you know how painful it is to cough. I quit coughing for ten weeks, and as soon as my rib got well I went to coughing again.

**Leon L. Solomon**, Louisville: There are a few remedies in the Materia Medica, referred to by older authorities as exerting what may be called "specific action—specific effect." Among these is Yerba Santa. I speak as a one-time teacher of Materia Medica when I say that this drug seems to possess a selective action on the air passages, permitting it to exert valuable properties in bronchiectasis. This ailment is not at all uncommonly observed by the physician, not only in children, but also in adults. The iodides enhance the action of Yerba Santa. Malt also enhances its therapeutic properties at the same time disguising the disagreeable taste of the iodides and the bitterness of Yerba Santa.

The manufactures of malt preparations recognized the virtue of the drug, incorporating Yerba Santa with malt extracts, to wit:

Maltine with Yerba Santa, Maltzyme with Yerba Santa, Trommer's Extract of Malt with Yerba Santa.

Thirty to forty years ago, these were sheet anchor remedies, in daily use by the profession.

**James W. Scudder**, (in closing): I have nothing special to add. I want to thank the doctors for their discussion. In view of the length of time Dr. Rutherford has had this disease I think I can take good news to our patient that she is going to live to be an old woman.

# SPINAL ANESTHESIA IN THE CONQUEST OF OPERATIVE PAIN*

J. Garland Sherrill, A. M., M. D.,
F. A. S. C.

Louisville.

The search for relief from pain began far back in the ages. The remedies employed were too numerous to mention. The most notable plants in use were Opium and Indian Hemp. Many chemical combinations also were employed with fair result because of their benumbing effects upon the sensory nerves. Large doses of alcohol were used in former days with and without the aid of opium to carry a patient through the ordeal of a surgical operation. Only a partial narcosis was obtained, and only cases of urgency came to operation.

This constant search for a panacea through the centuries has continued until the present day. Still no one anesthetic agent has proven ideal or universally useful. Each method has its disadvantages and its drawbacks, as well as its special advantages.

A study of the subject of surgical anesthesia carries one through the entire gamut of general (inhalation), rectal, intravascular, local, and finally to the employment of spinal anesthesia. All of the methods now in general use were unknown prior to 1842, when Crawford W. Long discovered the fact ether would produce insensibility to pain. Following quickly upon this was the use of nitrous oxide as an anesthetic by Wells in 1844 Morton's employment of ether as an anesthetic in 1846, and later the discovery of the similar properly of Ethyl Chloride, Ethylene, Somnoform, and like drugs.

In 1847, Sir James Y. Simpson introduced chloroform into obstetric practice. Niemen, with his assistant, Fred Wahler, isolated cocaine in 1860, while Karl Koller employed it as a local anesthetic in 1884. Von Schleich, Haltsted, and others aided in the perfection of the technic of its use as a local anesthetic. It was during the next year (1884-1885) that Leonard Corning, of the

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*Read before the Medico-Chirurgical Society, Louisville.

United States, demonstrated the possibility of cocainization of the spinal cord. This observation opened a wide field of usefulness for spinal anesthesia.

In 1901, the writer considered the subject of Analgesia from the "Spinal Subarachnoid Injection of Cocaine" in a report to the Kentucky State Medical Association. The conclusion was reached that "The ideal anesthetic would be a drug capable of producing unconsciousness, with freedom from pain and loss of reflex muscular contraction, without danger to life or disagreeable and annoying symptoms. Such an agent will scarcely be found, for any drug sufficiently powerful to render a patient even temporarily oblivious to external influences must of necessity be dangerous to life." "No one who has used anesthetics frequently will deny their danger, or the frequency with which serious symptoms are observed during their administration. It is owing to the dangers incidental to general anesthesia that a number of different methods have been tried with the view of lessening the chances of fatality. Researches of this character have developed local anesthesia to a remarkable extent, quite a number of drugs having been used for this purpose. Recently the use of cocaine has been extended to the spinal cord."

Credit was given to Bier of Kiel, Tuffier of Paris, Murphy, Matas, Fowler, Sharp, Morton and others of this country, for their pioneer work in developing this method. My report included twenty-seven personal cases and thirty-three cases of Dr. Sharp, who was working with me, and the total from literature of 1553 cases, with eight deaths from other causes (.51%) and none from the method of anesthesia. This number of reported cases was large, yet not sufficient to give an accurate idea of the danger or the value of this method for the relief of operative pain. That analgesia can be produced in this way was clearly demonstrated. "Strickly speaking, cocaine is not anesthetic, as the sense of feeling is not entirely abolished." The pain sense is lost. "The questions for the profession yet to determine are the dangers incident to its use, its feasibility, the indications and contraindications for its employment, the best strength of solution and the amount to be injected."

My conclusion expressed at that time was that cocaine, so used, would not entirely displace the general anesthetics, but that the method had a considerable field of usefulness. We considered the dangers of the method.

First: "The shock of tapping the cord and the injection of the drug. Single tapping of the subarachnoid space is usually a safe procedure, still Gumprecht collected seventeen cases from seven clinics of death quickly following lumbar puncture for diagnostic puncture, in which fatal termination could be attributed to no other cause than this apparently trivial procedure. It must be remembered, however, that these were cases of disease, either of the cord or brain, and in some cases at least tumor of the brain was present. It is quite probable too that the amount of fluid withdrawn played a part in these fatalities. Where only a small amount is withdrawn the shock is slight. The depression from the cocaine seems to be proportionate to the dose of cocaine."

Second: The danger to the cord and centers in the medulla. Sicard has demonstrated that the toxicity of the cocaine injection increases as the injection is made higher in the cord. According to Tait, Sicard, and Cagleri, the spinal canal is accessible as high as the sixth cervical space. Depressive action upon the medullary centers is extremely unlikely to occur if the dosage of cocaine is small and the injection made in the lumbar region of the cord, or rather the cauda equina. I have made the injection successfully in the tenth dorsal space of a child of nine. If the patient remains in the sitting posture for one or two minutes after the injection is made, there will be little chance for the upper part of the cord or the medulla to be affected seriously. Nicoletti (see Therapeutic Gazette, November 15, 1900), on the basis of an experimental research, maintains that these injections cause no anatomical alterations of the nervous elements. If he is correct, and the effect on peripheral nerves leads us to think that he is, the danger of paralysis and late effect upon the cord is very remote. The danger of hemorrhage into the canal from injury to one of the spinal veins by the needle must be very slight, yet a case is recorded where such an accident has occurred. (Case of Heumberg.)

Third: The action of cocaine on the heart. The drug is no more depressant on the heart when placed in the spinal canal than in the other tissues. A. M. Phelps reported a death from the local (not spinal) injection of cocaine of thirty minims of a 2 per cent solution." Sixth tenths of one grain may be assumed as the smallest lethal dose. Cocaine, in the past thirty years since the above report was made, has been replaced by other and less toxic drugs, such as: novocaine, tropocaine, eucaine, nucaine, spinocaine and nuprocaine—each having its advocates.

Fourth: The danger of Meningitis and Myelitis from infection through the puncture should be very slight under proper antiseptic precautions.

The technic recommended in 1901 is practically the same as that now employed with the exception of the change in the drug used.

The annoying and disagreeable symptoms following the use of cocaine are much less noticeable. Occasionally they are observed in less degree. Faintness, dizziness, nausea, vomiting, pallor, sweating, low blood pressure and rapid feeble pulse or perhaps a very slow feeble pulse may be present. The latter is a grave symptom. Ephedrin given before the injections prevents the low pulse pressure.''

The method of spinal anesthesia is coming into wide use, and it is flattering to one of the pioneers in this line of endeavor to see the method appreciated at present and its efficiency so well demonstrated. With proper care and dosage it is probably as safe as any form of anesthesia. Patients are accepting this type of anesthesia with but little of the dread of consciousness during the operative procedure. The relaxation, the quietitude of the patient, and the flaccidity of the intestines make a dramatic picture. The placidity and comfort of the patient after operation and his post-operative convalescence make the method a most desirable one.

Under modern methods all the disagreeable features as nausea, vomiting, backache, headache and sudden shock, observed when cocaine was employed, have been practically eliminated. My conclusions after the lapse of time is that our prophesy—that it would find its field in surgery—has been fully demonstrated.

After every general anesthesia, especially for the more serious operations, the appearance of the patient is certainly indicative that he has been through a serious ordeal; moreover, sometime must elapse before he regains full control of his faculties. That the shock of the general anesthetic, combined with that of the operation, tends to reduce the resistance of the patient to later dangers, such as sepsis suppression of urine, bronchitis, pneumonia, etc., I firmly believe. The shock after even major operations done under spinal analgesia is very slight. One who has seen the ghastly and helpless appearance following prolonged anesthesia, and the bright, cheerful expression of the patient who has had the spinal injection, is impressed by the marked contrast between the two conditions. This method of analgesia can be used in many cases in which a general anesthetic is especially dangerous, such as heart disease, bronchitis, or Bright's disease, with or without dropsy. These conditions, even with our present knowledge, offer a field for the use of this method. Old persons will certainly withstand the shock of an operation better under local than general anesthesia, and the interference with glandular activity, so frequent a sequence of general anesthesia, is not present. There is less disturbance of the lungs or heart; less interference with secretions; less shock; patient is conscious, and can give immediate notice of any ill feeling; after abdominal operations food and drink can be administered early without fear of nausea and vomiting, as the nausea occurs soon after the injection is given, and disappears promptly. A major operation apparently becomes a minor affair when done under this method.

## DISCUSSION

**L. Wallace Frank:** Dr. Sherrill has given us an exceedingly valuable paper upon a subject in which I have been very greatly interested for some time. I remember that in my student days, Babcock, of Philadelphia, was an enthusiastic advocate of spinal anesthesia, using stovaine. Even at that time he was doing operations on the upper extremities under this form of anesthesia and getting very good results, although I believe this method was more successful in his hands than in those of any one else. At the present time, spinal anesthesia is being widely employed all over the country and large series of cases have been reported without a fatality. Nevertheless, my own opinion is that there are certain definite indications for its use and that it should not be employed indiscriminately. We are told that it is contraindicated in persons with low blood pressures. I have operated on three cases under spinal anesthesia, showing an average systolic pressure of 90 without the least difficulty. If the patient be put in the high Trendelenberg position the fall in blood pressure is not marked. Also, the use of ephedrin preliminary to spinal anesthesia will tend to keep th blood pressure up and prevent the symptoms of shock which follow a rapid fall in the blood pressure.

I have seen untoward effects following the use of spinal anesthesia in at least three cases that I have in mind, after comparatively simple manipulation. In each instance the patient developed symptoms of a mild peritonitis, or adynamic ileus, with distention, vomiting, etc., which I attributed to interference with the splanchnic enervation on account of the drug used.

Certainly spinal anesthesia is here to stay. In fleshy individuals or those addicted to the use of alcohol in any quantity whatever, I think it is by far the method of choice.

As to the anesthetic to be employed, I believe the best is the one least used in this city; namely, ethylene. In the hands of an experienced man and with ordinary precautions, the danger to the patient is the least and relaxation the most satisfactory. Nausea is less, the patient goes under more quickly and comes out sooner and with a much better color than when nitrous-oxide is used. Ethylene has not been used in this city except by a few individuals but in other large cities it is more widely employed than any other form of anesthesia. The great bugaboo is the danger of explosion, but with proper precautions, and the grounding of tables, assistants etc. to prevent the generation of a static spark, this danger is minimized if not entirely overcome. With a greater familiarity with its use, I think ethylene will in time become the anesthetic of choice in this city as it is elsewhere.

**W. Owsley Grant:** I have been especially interested in the subject of spinal anesthesia in the past four years.

The renaissance of spinal anesthesia, especially in operations below the diaphragm, came with the introduction in this country of ephedrin, and Ockerblad, of Kansas City, was the first to report a series of prostatic operations under spinal anesthesia. Speaking, from the standpoint of the urologist, spinal anesthesia offers at least one great advantage and one great drawback. The advantage, as I see it, lies in the fact that it promotes relaxation to a degree greater than that obtained under any other type of anesthesia, and affords ample time in which to do almost any type of operation. Furthermore, the patient is insensible to pain for a prolonged period after the operation. We have come to the conclusion, therefore, that in cases where the kidney is primarily involved as the result of disease, in which it is particularly important that the anesthetic be one that will not impose an added burden upon the heart and renal system, spinal anesthesia is the one of choice, and we have employed it successfully in over five hundred cases. I have never seen a death result from spinal anesthesia given by an anesthetist accustomed to its use. We have seen one case where it was given by a man who is an excellent anesthetist but unaccustomed to spinal anesthesia, in which the patient developed complete paraplegia and ultimately died three weeks later. Whether the anesthesia had anything to do with it or not, I do not know.

We have also employed spinal anesthesia in a great many minor urological operations, where there was no necessity for deep or prolonged anesthesia. In such cases we give a very low spinal anesthesia, using only a very small amount of the drug, and there is complete absence of the heaving and motion of the bladder so frequently observed under deep anesthesia. We have found it most satisfactory in this class of work.

The principal objection to spinal anesthesia that we have noted has been a rather prolonged bleeding in the second stage of a complete prostatectomy. We have found it very difficult to accomplish complete haemostasis and, as a result, in twelve to twenty-four hours after the operation there was a tendency toward oozing, whereas we would ordinarily expect a prostatectomy to be perfectly clear within twenty-four hours. In some cases the pinkish tinge persisted for four or five days. For that reason we have abandoned the use of spinal anesthesia in that type of cases.

This is the only real objection to spinal anesthesia that we have encountered. In our kidney work it has proved to be the ideal anesthesia, inducing complete relaxation and minimizing the extra load upon the heart and renal system imposed by nitrous oxid and other forms of anesthesia.

**Guy P. Grigsby:** I am convinced that, within a few years, spinal anesthesia will assume a commanding place in the field of anesthesia. The mental attitude of the patient is something that must be taken into consideration in determining the anesthetic to be used. Some have a horror of inhalation methods, and others have an equal horror of not being "put to sleep." I am inclined to believe, however, that as the laity becomes accustomed to the idea of being fully conscious during a major operation, spinal anesthesia will become more popular and, consequently, more widely employed.

From the operator's standpoint, very little objection to it can be found. We get much more satisfactory and complete relaxation and, what may be important, we are able to secure the co-operation of the patient during the course of the operation, thus often facilitating matters in no small degree.

In my work I use spinal anesthesia and the inhalation methods about equally, but I feel that the former is gaining in favor and will soon be more generally used.

I have had a few cases in which there has not been complete anesthesia of the entire field of operation, and in such cases I have attributed it to incomplete or unsatisfactory introduction of the needle. If we get definitely into the spinal canal, there is uniform and complete anesthesia.

As to secondary hemorrhage referred to by Dr. Grant, I see no anatomical or physiological reason for this and I have not observed anything like it in my own work.

**Morris J. Flexner:** I would like for Dr. Sherrill in closing to say something about shock in connection with spinal anesthesia, and what is done to control it.

**Emmet F. Horine:** I must question one statement made by Dr. Sherrill. He said that spinal anesthesia is as safe as any other form of anesthesia. I think local anesthesia might be considered the safest; next to that, nitrous oxid; then ethylene. Ether would come next, then chloroform and spinal anesthesia which appear to have about the same percentage of mortality. Here in Louisville I have heard of some seven or eight deaths from spinal anesthesia, although perhaps the operations done under spinal anesthesia alone would number several thousand. In chloroform anesthesia, the mortality rate is about one in one thousand. That would appear to make spinal anesthesia a rather dangerous type of anesthetic.

I have been told that some surgeons accept patients with hypertensive heart disease as suitable subjects for spinal anesthesia. This would seem to be courting disaster. The cause of death in spinal anesthesia, when it does occur, is cerebral anemia. In hypertensive heart disease there is an arteriosclerosis throughout the body and, that being true, the blood pressure mechanism is hard pressed to supply the tissues with blood. Therefore, to do anything that will tend to lower the blood pressure is to invite trouble.

**A. J. Miller:** There are one or two points I would like for Dr. Sherrill to touch upon in closing. One is in connection with relaxation under spinal anesthesia; the other is regarding the postmortem findings in the only case of death following spinal anesthesia that I have had an opportunity to examine. The facts are, briefly, these: This patient had a condition which had been diagnosed as carcinoma of the stomach. He was given spinal anesthesia with a view to doing an anastomosis. When the anesthesia was about complete the patient suddenly ceased to breathe and was pronounced dead. He did not become cyanotic. The attending physician could not see or feel a pulse beat, though he looked for it promptly after the patient ceased to breathe.

The condition disclosed at autopsy was a carcinoma of the lesser curvature of the stomach which had metastasized to the regional lymph nodes, gone into the peritoneal cavity and seeded the peritoneum extensively. The muscles of the diaphragm were badly damaged by the tumor tissue which had invaded it from the abdominal side. Therefore, in interpretation of the autopsy I made this suggestion: That if the anesthetic had any effect upon the respiratory muscles, possibly the patient's death could be explained in this way: That the diaphragm, being profusely damaged by the growth of tumor tissue, was not functioning and that the anesthetic reached the nerves to the intercostal muscles and thus caused a cessation of breathing. I have attempted by reading and by talking to others, to determine whether such anesthetics do affect the motor nerves, but there seems to be a wide diversity of opinion upon this point. I would like to hear an expression from the members of this society as to whether or not such an interpretation is plausible or whether it is too fantastic to warrant consideration. There was no observation prior to operation as to whether the diaphragm was functioning in this case, so there is no clinical evidence to support this view. No incision had been made.

**Louis Frank:** There has been a great deal written and said on the subject of spinal anesthesia, particularly in the past few years, and the experience gained in its use in this country tends to show that diffusion in the spinal cord is not as extensive as it was formerly thought to be. I am sure, however, that in a living body we get no such action as we get in a spirit level or as demonstrated by Pitkin in his experimental work on dead bodies. His theory presupposes that the spinal fluid is absolutely quiet, that wherever extraneous fluid is put, seeks its level depending upon the specific gravity and the level of the patient. I think this theory is entirely fallacious because, in a living body, there is of necessity a certain degree of physiological diffusion and of motion in the spinal fluid.

Spinal anesthesia is not without danger. It is as true in the employment of spinal as any other form of anesthesia, that the patient should not be fitted to the anesthetic but the anesthetic to the patient. Each case must be regarded as a separate entity and just because it is one of intestinal obstruction, for example, is not a positive indication for the use of spinal anesthesia. The patient must be considered in addition to the operative indications. In intestinal obstruction, after it has reached a certain stage where there is great distention or fluid in the abdominal cavity, spinal anesthesia may be a positively dangerous procedure. Again, in prostatic conditions, where we have a damaged kidney as pointed out by Dr. Grant, spinal anesthesia may be dangerous. Therefore, it is not an anesthesia to be used promiscuously and indiscriminately; our cases must be carefully and intelligently selected with due consideration for the patient's condition and all surrounding circumstances.

On the other hand, a considerable percentage of the mortality attributed to spinal anesthesia could more properly be laid to its employment by men unaccustomed to its use, who undertake it without sufficient observation, study and practice. We should not blame methods and materials for bad results obtained by individuals unaccustomed to or incompetent in their employment.

**J. Garland Sherrill,** (in closing): I agree with Dr. Frank that it is not the method itself, but rather its injudicious employment by those unskilled in its use that is responsible for a great many of the fatalities attributed to spinal anesthesia. In our own experience, we soon found that 14 minims of a 2 per cent solution of cocaine was all that was necessary to produce anesthesia as high up as we wanted to go.

In passing I want to apologize to Dr. Dowden for not having included him in my report. I recall that he assisted Dr. Sharp in a great number of cases.

When we first began to use spinal anesthesia many of the patients following injection of the drug into the spinal cord, would show signs of shock—pallor and a very feeble pulse, but we soon learned to graduate the dose to a point where scarcely any evidence of shock is noticeable.

I also agree with Dr. Frank that Pitkin's theory is entirely fallacious.

Annoying or disagreeable symptoms following the use of spinal anesthesia are by no means constant or certain. Rapid heart, nausea, vomiting, fainting, dizziness, sweating, and, more rarely, cyanosis and involuntary action of the bowel, have been noted. These symptoms disappear with the onset of nausea and just prior to vomiting. Nausea was present in about thirty per cent of 803 cases, where cocaine was used, occurring usually within five minutes after the injection. It is usually slight, not persistent, and infrequently accompanied by vomiting. Headache seems to occur with about the same relative frequency and may be prevented or relieved by the use of coffee, bicarbonate of soda, etc. Nitroglycerin will sometimes prevent the onset of nausea.

I agree fully with Dr. Horine that in cases of hypertensive heart disease, where the heart is having all it can do to get blood through the circulatory system, if we administer a drug that will suddenly dilate the entire capillary structure, the heart is very apt to give out entirely and the patient will die. Again, in a case of ectopic gestation, for example, with the patient bleeding, I certainly would not employ spinal anesthesia as a matter of preference, because it would tend to open up the blood vessels and increase the volume of blood flowing into the abdomen and the patient might die before it could be controlled.

I do not agree with Pitkin that the patient should be put in the reverse Trendelenberg position unless a great amount of blood has been lost and it is necessary to get the blood back to the heart to keep it going.

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**Influence of Bacterial Filtrates and of Toxins on Tumor Cells.**—Segre first studied the influence exerted by filtrates of bouillon cultures of various bacteria on suspensions of different carcinoma cells. He observed that some filtrates are capable of attacking the cells of certain suspensions The activity of the various filtrates against the different cell suspensions varies and the susceptibility of a carcinoma cell suspension toward the various culture filtrates differs likewise. If carcinoma cell suspensions are exposed to the influence of true bacterial toxins, it can be noted that in the influence is much less pronounced than if they are exposed to twenty-four hour culture filtrates of nontoxic bacteria. It was also noted that there is no relationship between virulence, pathogenicity and toxicity of a type of bacteria, and the capacity of its culture filtrates to attack tumor cell.

# MULTIPLE MALIGNANCY, EXHIBITION OF SPECIMEN AND REPORT OF CASE*

Louis Frank, M. D., and A. J. Miller, M. D.

Louisville.

Patient, a woman 61 years of age, came to the cancer clinic several weeks ago. She had borne several children and passed the menopause between her forty-fifth and fiftieth years. In January of this year she first noticed a little spotting. This disappeared for a while, but about March 22nd she again had a little spotting for a day or two, and consulted Dr. Casper who sent her to the clinic for diagnosis and treatment.

Upon examination, her cervix was not even open but believing it improbable that anything but carcinoma could have been responsible for this bleeding, curettage was advised and accepted, and microscopic examination of the tissues resulted in diagnosis of adenocarcinoma. A few days later we did a panhysterectomy from above, removing both ovaries and both tubes as well as the upper portion of the vagina, as should be done in all such cases. The specimens were sent to Dr. Miller who reported adeno-carcinoma of the uterus and a sarcoma of one of the ovaries, and it is principally because of this that the specimens are presented. Dr. Miller in his discussion will elaborate upon his findings.

## DISCUSSION

**A. J. Miller:** The specimen shown is the uterus, opened to show a small papillary tumor which has invaded the muscle, and the irregularity of the morphology of the epithelial cells determines the diagnosis of malignancy. The ovary is all there except a small piece removed for section. It appears that these tumors are of multiple origin and that there are three types which can only be satisfactorily differentiated by more complete examination.

The case is interesting because of this multiplicity of tumors of different types, or so-called hetereogenous tumors. Coxswain indicates that multiple tumors of different types occur in about 1½ per cent of all instances of neoplasm, while Symers puts it at 12 per cent and says that it is very probable that the relative frequency of its occurrence varies in different reports in direct proportion to the amount of study that has been given to his cases by the individual making the report; in other words, he thinks it is of more frequent occurrence than is commonly believed and that insufficient study has led to the belief that it is comparatively rare.

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*Read before the Medico-Chirurgical Society, Louisville.

# DIAGNOSIS AND TREATMENT OF EMPYEMA OF CHILDHOOD*

CLARK BAILEY, M. D.

Harlan

One of the most essential aids in the diagnosis of empyema in childhood is the careful daily examination of the chest. In the typical case of empyema of childhood (under three to four years of age) bronchopneumonia precedes the infection of the pleural cavity. The fever may drop by lysis instead of by crisis and may not reach normal before empyema develops. It can easily be seen that unless the examiner examines the chest daily in such a condition the diagnosis may be delayed for several days. The typical case of a child over three to four years of age is that in which there is a return of the fever after the pneumonia crisis (lobar pneumonia), with dyspnea, rapid pulse, cyanosis, and displacement of the heart. The real problems of diagnosis are encountered in the atypical cases which are probably more frequent in children than in adults. In pneumonia, when the temperature falls but does not quite reach normal and then oscillates above normal, empyema should be suspected. In most cases, after there is a development of pus, a so-called septic temperature ensues, higher evening and lower morning temperature, accompanied by severe perspiration, especially at night. This latter symptom is a very common one and is so annoying to the mother or nurse that it is practically always reported to the doctor early. It is claimed by some that a continued temperature following pneumonia may be due to a delayed resolution in the pneumonia of childhood. We know, however, that most of these cases turn out to be empyema.

When a case of empyema is admitted to the hospital the diagnosis is usually easy as the symptoms and signs are usually definite before the patient is admitted. Unless the doctor is especially alert a consultant may diagnose the case for him or a doctor to whom the case has been referred may immediately inform him that without any doubt a frank empyema exists. Careful daily observation is, therefore, highly important.

The acute cases usually show cyanosis, dyspnoea, rapid pulse, high fever, and sometimes delirium, which is not uncommon in infants. The subacute cases where the empyema is well circumscribed and of pneumococcic origin, the preceding symptoms may be entirely absent, and instead there may be a hacking cough,anorexia, occasional diarrhoea, a loss of weight, periods of profuse perspiration, etc. When a history of pneumonia can be obtained the diagnosis is greatly facilitated.

Heretofore, symptoms and conditions relative to the diagnosis of empyema have been enumerated. Some of the most important signs in the diagnosis are, the bulging or fullness of the chest on the affected side, where the percussion note is flat and there i an extension of the dullness anteriorly, distant or absent breath sounds over the affected area, limitation of expansion on the affected side, displacement of the apex beat to the opposite side, and usually a white blood count of from eighteen to thirty-two thousand.

Fluoroscopic and roentgenographic examinations are important but not conclusive aids in the diagnosis and are of special value in diagnosing the interlobar, mediastinal, and supradiaphragmatic empyemas. The x-ray is of great assistance in locating the empyema and of determining the condition of the lungs themselves. Roentgenograms of the involved lung are not very helpful in distinguishing between a pneumonia and empyema, particularly if there is only a thin layer of fluid present. "Fluoroscopy should be more commonly used in the diagnosis of pulmonary disease in children, particularly if the presence of fluid is suspected."

Absolute diagnosis depends upon the demonstration of pus by aspiration—the only real conclusive sign. There are several factors in empyema which may mislead us during aspiration even when empyema is present. The pus may be of such consistency that it would be difficult to obtain through an aspirating needle. The bore of the needle may be so small that the pus will not flow through it. Any of these factors may cause the diagnostician to find a dry tap, adding further difficulty to the diagnosis.

Success in the handling of a child's empyema depends in no small measure upon an early diagnosis. "An early detection of pus and a prompt application of the necessary treatment minimizes the risk to life and promotes the early and complete re-expansion of the lung, which is essential to the obliteration of the cavity, and the final cure of the disease." "Fatalities, unhealed sinuses, and chest deformities—chronic empyemata—are the penalties more often of casual clinical observation than of ineffectual treatment.

Empyema is generally recognized as a very difficult and unsatisfactory condition to treat, and the younger the patient the worse the results. No one method of treatment has been generally accepted and because of this fact there has been evolved a large number of widely differing methods of treatment.

An early detection of pus in the chest and a recognition of the absence or presence of further pneumonia processes is of great importance. Also in the judgment of the doctor whether or not the patient is in a positive or negative stage of toxemia; if in a negative state, a proper evaluation of the patient in respect to an operation. In the presence of pus where the pnuemonia processes are still active or where the physical condition is such that the operative risk is too great, ultra-conservative measures must be used until it is safe to operate. Alexander makes the statement that, "The question of operation in these cases bears a marked resemblance to the question of immediate operation of acute appendicitis with diffuse peritonitis, where also it is often better to wait for localization and a better state of resistance on the part of the patient."

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*Read before the Kentucky State Medical Association at Louisville, October 3 6, 1932.

In empyema there is present in the pleural cavity a quantity of pus, usually encapsulated. The pus may be thin or thick, depending upon the organism causing it. The assumption is made that resolution of the pneumonia has already taken place. The treatment now depends solely on the simple law of drainage of the encapsulated pus. It may be closed drainage by aspiration or incision and drainage with rib resection, nevertheless, the main principle is free evacuation of the pus, however accomplished. Within the past few years numerous articles have been written and many methods of treatment have been advised and yet every method of treatment evolved has been built around one of the great fundamental laws of surgery—that of proper drainage.

If pus is present before resolution has taken place slow aspiration should be used as often as necessary and as completely as possible until the pneumonia has resolved. This prevents the pus from causing too great a pressure on the heart and lungs. The accumulation may reform rapidly and require tapping every two or three days, one or two tappings may tide the patient over the danger stage, or in a very small percentage of cases a cure may result from the tappings alone. Thin streptococcic pus should nearly always be treated by aspiration since this type nearly always ends fatally, especially in children, when a rib resection is done. Regardless of the method of treatment, whether open or closed, aspiration is essential, at least, in the early stages because it not only confirms the diagnosis but it furnishes us information in regard to the consistency of the pus, the type of the causative organism, and most important of all, a lead as to the method of treatment to be selected. Aspiration may be of life saving value as an adjunct to treatment in certain cases. Where the quantity of pus is very large, where there is considerable cardiac displacement and the child's respiration is seriously embarrassed, it is best to aspirate a considerable quantity of pus twelve to twenty-four hours before instituting a thoracotomy. In such cases the operative risk is greatly reduced because a sudden reduction of intrathoracic tension with its train of circulatory disturbances and shock is avoided. Reduction of tension in long standing, large collection empyemas should be gradual just as in chronic retention of the urinary bladder.

There has been much discussion in regard to treatment by aspiration, whether it should be intermittent, continuous, or for diagnosis only. Continuous aspiration which amounts to a closed thoracotomy (in which the trocar and cannula are used) is advocated by many as the best method of treatment. Rienhoff and Davidson who observed a large number of cases of empyema under two years of age reported, much to their surprise, that the fatality rate among infants in whom a closed thoracotomy was performed was nearly twice as high as that in the group in which rib resection was done. In their series, instead of decreasing the fatality rate in infants under two years of age the use of the trocar and cannula with siphon drainage had actually increased the number of deaths.

Penberthy and Saltzstein present a series of cases in which the trocar and cannula were used in connection with irrigation at intervals with Dakin's solution. It is their contention that the mortality rate by this method is reduced from 25 to 10 per cent. A great many prominent workers in this field claim that closed drainage meets its greatest indication in empyema of childhood, that the cavities are smaller than in adults, that the radical operation is a greater ordeal, and that lung expansion and lung collapse occur much more readily.

Probably the most popular and widely used method of treatment of empyema either in the child or adult is that of rib resection and drainage. My time is too limited in this paper to go into detail in regard to this procedure or to mention other methods which are used in the treatment of this condition. Local anesthesia, gas and oxygen, or gas-oxygen-ether may be used as an anesthetic. Usually the eighth, ninth, or tenth rib in the post-axillary line is resected, and one or two fenestrated rubber tubes inserted into the wound at the time of operation, these tubes being place at the most dependent portion of the abscess. Some surgeons, at this point, irrigate the cavity with some antiseptic solution, such as Dakin's solution, and continue the irrigations at intervals after the operation. This latter procedure is a surgical football and will not be discussed in this paper.

Sudden withdrawal of large amounts of fluid should be avoided during this operation in order to prevent sudden changes in circulation and respiration, since the heart and lungs might be unable to adjust themselves to these changes of volume and pressure. Methods to expedite drainage such as the Woulfe bottles, blowing toy balloons, soap bubbles, whistles, etc., cannot, of course, be used in the very young children and infants. The fenestrated tubes can be shortened a few centimeters at a time, as indicated, and finally removed. If there are no signs of a returning fever the wounds are allowed to heal.

### SUMMARY

1. Careful daily examination of the chest is important in the diagnosis and successful treatment of empyema in childhood.
2. Absolute diagnosis depends upon the demonstration of pus by aspiration.
3. The mortality rate of empyema of childhood is higher than that of adults.
4. Resolution of the pneumonia must be complete before surgical treatment is instituted.
5. Treatment depends solely on the drainage of pus from the pleural cavity, regardless of the method used to accomplish the necessary drainage.

### DISCUSSION

**Philip F. Barbour**, Louisville: There is hardly a thing in Dr. Bailey's paper that does not meet with my full accord, so I wish simply to emphasize two or three points in agreement with him and throw a litle extra emphasis on them.

If we have a case of pneumonia in a child complaining of a great deal of pain, abdominal pain particularly, we should at once tell the parents that this is likely to be followed by a pleurisy and by empyema. If we are conscious all the time of the possibility of an empyema, I think it will not be apt to slip up on us and catch us unawares.

Ordinarily the pneumonia has gotten well by the time the empyema symptoms have begun to develop. The usual history is that the child's temperature has declined, and for two or three or four days there has been no fever, and then the child begins to get a little fever and gets a peculiar type of hacking, non-productive cough that will awaken your suspicions.

If the child begins to have an afternoon temperature, fever with perhaps a little sweating at night, loss of appetite, then begin to suspect that there is an empyema present.

It is difficult to recognize empyema until there has been a sufficient amount of effusion for you to get it by the ordinary physical signs. When I was a student at school I was taught that when there was fluid in the chest none of the vocal sounds passed through that fluid, and I think many times doctors have been fooled by that old dictum. You do hear voice sounds through the fluid of empyema or pleurisy in childhood. This may not be true in adults, but I do know you hear voice sounds in children. The sounds are muffled and distant as though you were listening through a pillow or some thick object, but you can definitey get the sounds through the fluid in the chest, so do not be fooled by that.

I want to emphasize the matter of the pressure in the chest. Dr. Bailey has spoken of the displacement of the heart. I think this is a very helpful sign, because pneumonia will not displace the heart, but fluid in the chest will displace it. You may also notice that the liver is displaced downward and also the spleen becomes palpable when the effusion is on the proper side. So look for evidences of displacement of the organs; it will give you a fine idea of the amount of pressure that is present in the thoracic cavity.

Do not be misled, of course, by the possibility that there is air in the chest cavity instead of fluid, and it isn't always so easy in a young child to elicit the sounds.

As to the surgery, I heard Dr. Davidson say at one of our Southern Medical Association meetings that he had been of the opinion for a long time that simple incision in children, with drainage, was the proper treatment, and he was very much surprised when he took the mortality records at the Johns Hopkins Hospital to find that the simple incision turned out very much worse in young infants and older children than did a rib resection. So when he resorted to the statistics he found his impression was wrong. The statistics showed that drainage, even with resection of the rib, was absolutely the best form of treatment.

I think that the point Dr. Bailey has made of withdrawing fluid is splendid. It will give you a good deal of an idea as to whether to go into it more intensively. If you draw a fluid from the chest cavity that is very thin, you can rely upon puncture with the trocar and cannula, and drainage, but if that fluid is thick you cannot get that stuff out of the chest. I have seen slugs of fibrin nearly as large as my hand taken out of the chest after the operation for removal of a section of the bone. It is impossible for such a slug of fibrin to get out through a cannula. Where you have very thick pus you can be pretty sure that you have fibrin clots behind it. Of course, that fibrin will resolve after a while, but it takes five to ten days for it to be resolved, and during all of that time you are permitting an increased toxemia in your child.

One final point: You do not always get fluid when you aspirate a case in which you have made a proper diagnosis of empyema. That fluid is sometimes so sacculated that you do not get your needle into it, you do not puncture it deeply enough or you do not go in exactly in the right place.

I remember one case that came to me that was operated upon by a surgeon who still could not find the pus, in which that pus was interlobar and it was two or three weeks before that pus had worked its way out through the incision which the surgeon had made. It is not always easy to reach the pus, even when you are sure it is there.

Of course, the x-ray will be of tremendous help to you in making your diagnosis, but unfortunately even here in the city it is not always possible to get our patient in a hospital to be x-rayed, so you must rely upon your fingers, your hearing, and a little gray matter above your eyes to make your diagnosis.

**Hart Hagan**, Louisville: As Dr. Barbour has indicated, Dr. Bailey has covered in his paper, in a most excellent manner, the important points both in the treatment and in the diagnosis.

With reference to treatment, I wish simply to emphasize the importance of his statement concerning the daily check-up of your physical signs, without discussing those signs, and particularly to emphasize the fact that your diagnosis finally depends entirely upon the demonstration of pus by aspiration. No surgical treatment should be instituted until pus can be demonstrated by aspiration, and it should be demonstrated on the operating table and the needle followed in. As. Dr. Barbour indicated, it is very easy to miss these cavities.

I think we are often lost in the maze of discussion regarding the type of treatment for empyema. We should approach these cases with a perfectly open mind, and suit the treatment to the particular case. We have not only the treatment of the disease, but the treatment of the patient to consider. The condition of the patient, and particularly a consideration of the physiology and bacteriology involved in the case should indicate the type of treatment. From a physiological standpoint we know that these cases with a very mobile mediastinum and low vital capacity will not stand large open pneumothorax. From a bacteriological standpoint we know that the problem is different in the typical pneumococcus, empyema following pneumonia from that encountered in the streptococcic empyema of influenzial origin. In the first case a well walled off cavity, ideal for rib resection and drainage is usually encountered, while in the second case the entire cavity is often involved and early rib resection is frequently fatal.

So we have at our hands a choice between aspiration, thoracotomy punch or so-called closed drainage, and rib resection and drainage.

Aspiration in children, of course, will often cure the empyema where there is a small amount of thin pus. As Dr. Barbour stated, it is not sufficient in cases that have thick pus. The most important point that Dr. Bailey made in connection with aspiration is that it serves to decompress an empyema cavity, just as we would decompress a bladder or decompress a chronically obstructed bowel. However, the large majority are not cured by aspiration.

With the thoracotomy punch the method that I particularly like to use is to make a very small incision (and it should be done under local anesthesia with children in all cases), and to insert two Pezzer catheters using these for an intake and out-take in irrigation of suitable cases.

Then the cases that will not yield to aspiration or thoracotomy punch must come to rib resection and drainage. A large majority of them will come to rib resection and drainage in order to get adequate drainage.

In the postoperative treatment we should emphasize again what Dr. Bailey emphasized with regard to diagnosis, that is a daily check-up. These cases are often saved or lost more particularly by the type of postoperative treatment than by the type of operative treatment.

**Arthur T. McCormack**, Louisville: I want to call the attention of the members to several cases that I have heard reported that did not require operation where the bacteriophage had been used, which unquestionably lessened the extent of the infection in all cases that I have seen reported, and in some cases seems to have entirely controlled the condition without any further procedure. I really think the administration is worth consideration.

**B. S. Rutherford**, Bowling Green: I just want to verify the statement of Dr. Barbour that we do have the sounds in these lungs. We would naturally expect it from the pressure. We have a bronchial breathing that we usually find.

Ten years ago I was called to see a child two years old with empyema following bronchopneumonia. The right cavity of the chest was filled entirely, and its condition was not such that it would warrant an operation. I drew off six ounces of pus with a Luhr syringe, which gave considerable relief at the time. The pus never accumulated again, the child got well, and is now a sound, healthy child with no other treatment than just drawing off the pus.

**J. Duffy Hancock**, Louisville: I am sure all of us have enjoyed the paper and the discussion. It has been so complete that there is not much to add, but there are two points I should like to make in regard to the treatment. In the first place I believe firmly in rib resection in the vast majority of cases, with this provision, however: that a rib resection never be done until thick, yellowish pus is aspirated, and only then.

For anesthesia, I like local infiltration anesthesia with novocaine in all these cases, not only in children but also in adults. You can get adequate analgesia, the patients are pretty sick anyhow, and I feel it is much safer to use a local anesthetic, which is just as satisfactory as a general anesthetic.

As to the position of the patient at the time of operation, most of the positions in the past have not been entirely satisfactory. If the patient lies on his back it is rather difficult to get access to either side where we intend to do the rib resection. If he lies on his good side so as to put the bad side of the chest up and make it easier for operation, we have embarrassment of respiration because of the compression of the good side of the chest, and of course if the good side is put up in the upper position, the access is quite difficult to the affected side. Therefore, for the past few years I have been using the prone position. It is not original at all; I forget where I heard the reference. I allow the patient to lie flat on his abdomen and chest. In that way his respiration is practically as unembarrassed as it is when he is on his back, and there is a ready access to the portion of the rib that we wish to excise. I think if you will try this position you will be very well satisfied with it.

**R. C. Burrow**, Cunningham: I just wanted to report two or three cases to emphasize the method of draining.

In 1902 I treated a patient with traumatic pneumonia from a stab in the lung.The internal hemorrhage was very severe. And, I want to say that I was alone and couldn't get help. Outside, temperature was ten or twelve degrees below zero and other doctors refused to get out in the cold.

I tried to remove the hemorrhage just by inserting the double catheter, and injecting hot water by this means. I removed enough of the clot of blood from the chest to lower the respiration from 70 to 40.

The case was drained out and an antiseptic injected every day for awhile, but a traumatic pneumonia developed and in a few weeks pus began to run through the fistulous opening where we had drainage. We still injected the antiseptics for six months, with continued flow of pus.

I called the late Dr. Rivers, of Paducah, and he performed a resection. The condition was relieved, the drainage stopped in two weeks, the patient made a recovery.

The second case was a baby in which we just inserted a small drainage tube and it drained six months and then quit draining, and in eight months it died of tetanus. No other wound by which infection could enter. Resection is the only drainage that drains.

# STRICTURE OF THE FEMALE URETHRA*

W. T. Briggs, M. D.

Lexington Clinic, Lexington.

We have chosen this subject because in spite of the frequent occurrence and importance of stricture in every urologic, and many gynecologic diagnosis, it has been sadly neglected. In our enthusiastic search for kinks, stones and strictures of the ureter, infections and other pathologic conditions of the kidney and bladder, we have been too prone to overlook the lowly stricture which, after all, in many cases is either the sole lesion present or at least often an etiological factor worthy of consideration. General surgeons and gynecologists have been too prone to attribute bladder disturbances to pelvic pathology. Tumors and extravesical infections, as well as displacements of the pelvic viscera, are seldom the actual cause of continuous bladder distress. The bladder adapts itself remarkably well to pressure and if there are bladder symptoms in the presence of pelvic pathology, one should at least examine the urethra for stricture and the urine for bacteria before resorting to operation. Remember that a urine may be clear and sparkling and yet harbor sufficient bacteria to cause bladder symptoms.

Aside from articles by urologists published within the last few years one can search the literature for descriptions of this lesion with scant reward for his efforts. While it is true that during the last century Lisfranc, Civiale, Earle of London, Robert Newman, Fissaux, Skene and Otis, all discussed stricture in the female and appreciated its importance, our modern textbooks on general surgery and gynecology, and even urology, give the lesion little recognition. About 1886 Herman of London found 63 cases reported and added 6 of his own. When Pugh first studied the condition in 1924 he examined more than 3000 gynecologic and urologic records and found only five cases definitely diagnosed as urethral stricture and one of these was a carcinoma. Wynne quotes Winckel as having found three cases in 3000 records. Fischer records four cases in 4000 records. In other words these three authors found only twelve urethral strictures in 12,000 case records. Were the condition actually so rare as the above figures make it out to be, the subject would be entirely academic and of little practical importance and there would be no excuse for this paper.

On the other hand, glancing at rather recent literature we find an entirely different array of figures. Anderson finds 25 per cent of female urological cases complicated with urethral narrowing. Stevens 90 cases of stricture in 169 urologic cases. Pugh reports 86 cases of this lesion in 460 urologic examinations in the female; in 21 of these cases the size of the stricture was 14 F. Cheetham writes that 10-12 per cent of all women with urologic symptoms show definite evidence of urethral stricture. Bugbee, in analyzing 1000 cases of frequent urination in women, found 54 cases of stricture. Hunner finds that from 60 to 85 per cent of patients with ureteral strictures suffer also with narrowing of the urethra. We have found 45 cases of stricture in 500 females complaining of frequent urination. Also four cases of stricture associated with carcinoma of the cervix and three cases with symptoms of stricture whose urethras would easily admit a 28 F. instrument. These three patients responded to dilatations. One of them had alternating incontinence and retentions. Another had a persistent incontinence. Whether the symptoms were due to a split or fissure in the mucosa we are unable to say. We have classified them as chronic urethritis. In all this makes 49 patients with bladder symptoms partly or entirely due to narrowing of the urethra and three patients with symptoms which were relieved by dilatation. Montague Boyd finds most strictures are at the meatus, finds them often and like Folsom, thinks they may account for the difference in the incidence between pyelitis in the female and male. Adding the figures above and averaging we find the average to be approximately 19 per cent (with 53 per cent at one extreme and five at the other). While we believe 19 per cent is too high an incidence for this lesion, we feel sure that routine examination of the urethra by surgeons and gynecologists making pelvic examinations will show many strictures, especially in patients having urinary symptoms. Our own percentage would be higher if we had not confined the study to patients complaining with frequency. Difficulty in passing a 26 F. double catheterizing cystoscope without previous dilatation is so common that we routinely sterilize sounds along with the cystoscopic instruments. Furthermore until very recently we have not examined routinely for stricture except by using a No. 18 catheter.

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*Read before the Kentucky State Medical Association at Louisville, October 3-6, 1932.

Anatomy. The female urethra is a musculomembranous tube 5 to 6 cm. long with a diameter normally admitting bulbs from 26 to 30 French scale. It corresponds to that portion of the male urethra lying above the utriculus prostaticus. The epithelial lining is composed of transitional cells near the bladder gradually changing to the squamous type as it approaches the vestibule. This lining and the very vascular submucous coat which supports it, is thrown into longitudinal folds which accounts for the ease with which the normal urethra can be dilated. Numerous mucous glands open into the canal throughout its extent. There are also some paraurethral glands which open by long ducts into the lower or distal third of the canal. Infection of these glands may lead to abscess or cyst formation.

Etiology. Except in congenital narrowing of the meatus and the atresia of old age, strictures owe their origin to trauma regardless of whether such trauma is mechanical, surgical, chemical or bacterial.

Mechanical strictures may result from childbirth, severe contusion, or injury to the canal caused by the passage of a large calculus; surgically from vaginal operations and overdilatation of the canal, such as was formerly a not uncommon practice; chemically from the use of strong antiseptics, especially in the treatment of gonorrhoeal urethritis; bacteriologically from the constant bathing of the distal urethra with infected vaginal and urethral secretions and here, of course, the commonest infecting organism is the gonococcus. That such an origin of urethritis and trigonitis from bacterial infection is not uncommon, one only has to remember the appearance of the genitalia when the labia are separated for examination. Here we see the meatal cleft bathed in pus. That the bacteria in this pus often invade the urethra and bladder is only too evident when we remember the marked frequency of bacterial cystitis in the female and its rarity in the male. Regarding this type of infection Folsom writes as follows: "A large number of these cases have had their origin in some previous attack of gonorrhoeal urethritis, and yet I am sure a large number are not gonorrhoeal in origin and are due to some other organism reaching the urethra from the vulva and vagina, or perhaps are metastatic from some distant focus."

Pathology. Our personal knowledge of the pathological changes due to stricture is very limited. With the catheter or bougie we often feel the resistance offered by scar tissue and with the cystoscope can see minute vascular translucent polypoid tags surrounding the internal meatus. These bleed easily with or without instrumentation and are the main source of hematuria in cases of stricture, but when the stricture is narrow, urination difficult and painful, doubtless the whole mucosa becomes engorged and bleeds easily as is readily discovered by passing an instrument. In two cases of stricture with hematuria we found the entire mucous membrane of the bladder ecchymotic.

Folsom has made a very thorough study of the pathology here, having submitted snared off polypoid masses to microscopic study. This shows that the changes are due to a glandular hyperplasia in many cases associated with retention of the gland contents. Occasionally the retained secretion undergoes calcification but oftener, as already mentioned, undergoes abscess formation or becomes cystic. Usually the abscess or cyst points into the vagina.

Stricture meatus 8 cases

Average 19.4

Number 16—1
Number 17—1
Number 18—3
Number 20—1
Number 24—1
Number 26—1

Stricture urethral canal 37 cases

Average 18.7

Number 10—3
Number 12—3
Number 13—1
Number 15—2
Number 16—2
Number 17—1
Number 18—7
Number 20—6
Number 21—1
Number 22—3
Number 23—3
Number 24—4
Number 25—1

Chronic urethritis 3 cases

Cancer of urethra, extension from cervix 4 cases

The smaller size strictures; that is, size 10, 12, 13 and 15 were among those with retention and a few necessitated the use of the filiform before the bladder could be catheterized. After the filiform guide entered, the size of the strictures were measured, as given above.

Symptomatology. Knowing the pathological changes just described makes it easy to understand the symptoms usually present. Frequent, painful and difficult urination are the most common symptoms. In addition we often see hematuria, retention and sometimes incontinence, occasionally incontinence alternating with retention in the same patient. This is not the so-called paradoxical incontinence found in the male suffering with stricture, prostatic obstruction or tabes, but is apparently caused by reflexes from the highly congested mucous lining causing an urgency so marked as to amount to incontinence. Other symptoms encountered are pains across the sacrum, over the bladder and in the groins. It is these pains that often lead to unnecessary, futile pelvic operations. Bransford Lewis reports cases of typical renal colic which he calls regurgitation renal colic. These patients were cured by dilating the urethra and not by dilating the ureter.

Civiale as long ago as 1850 knew that nervous symptoms due to stricture occurred in women as well as in men. Since the majority of these patients have an infection of the bladder it is difficult to definitely determine the role played by the stricture in the bladder symptoms. In all probability in wide strictures (23 to 25 F.) the infection, rather than stricture, is the main cause of bladder symptoms, while in strictures of narrow calibre, symptoms will be present whether there is or is not an infection.

| | |
|---|---|
| Retention | 11 |
| Incontinence | 4 |
| Retention and Incontinence | 1 |
| Must stand in order to void | 2 |
| Urine negative | 11 |
| Bacterial infection | 28 |
| Considerable pus—no bacteria | 3 |
| Macroscopic hematuria | 8 |
| Accompanying pyelonephritis | 3 |
| Ureteral stricture | 1 |
| Renal pain | 4 |
| Back pain | 2 |
| Pain in groins | 2 |
| Hypogastric pain (except retention) | 2 |

Of the 11 cases of retention, 4 were cases of carcinoma of the uterus with extension into the urethra. Three of these had been treated with radium. One of the cases had complete occlusion necessitating a suprapubic cystotomy. All the others required catheterization from time to time, except one in whom a retention catheter was used most of the time for several months preceding death. Of the two cases who had to stand in order to void, one had found it necessary to do this for eleven years, and never had to stand to void after the first treatment, although only a small catheter was passed at that time. Of the 28 cases with infection in the bladder the large majority, as might be expected, were infected with a Gram-negative bacillus. Those suffering with macroscopic hematuria often ceased passing blood after the first treatment, though several required repeated treatments before this symptom was completely relieved.

Diagnosis. Diagnosis is sometimes made by inspection. In such cases the meatus is manifestly abnormally small. Failure to pass a No. 16 or 18 catheter at least means a narrow meatus and deserves attention and often means a stricture higher up. If the meatus is wide a bougie a boule is the best instrument to use and will detect various points of narrowing. One should start with the largest bougie the meatus will admit just as in the male and determine the location, and the size of the stricture or strictures by using successively smaller instruments. The catheterized urine should be examined routinely, stained and cultured. Pelvic and rectal examination should be made as a matter of course, since tumors of the uterus and adnexa, pelvic infections, etc. should be recognized if present. If hematuria is a symptom, cystoscopy should be performed. In many cases urethral and cervical smears should be made.

Since ureteral strictures may cause symptoms almost identical to those present with urethral strictures and since the two are often associated in the same patient, investigation of the upper urinary tract may be indicated. We, however, agree with Folsom in the opinion that many cures ascribed to dilatation of ureteral strictures in all probability would have resulted had nothing else except urethral dilatation been practiced.

Prognosis. So far as life is concerned is much better than in the male since there is no danger of chronic prostatitis and prostatic abscess; no danger of extravasation with its high mortality and little danger of dilatation of the upper urinary tract though, of course, that does occur. On the other hand strictures, except at the meatus, are more apt to be resilient than most strictures in the male and consequently require often repeated regular dilatations.

Treatment. The dictum "dilate if you can, cut if you must" should be observed in the female even more than in the male, since urethrotomy is probably more likely to lead to a permanent incontinence. Various authors mention internal urethrotomy, some external urethrotomy, and some even go so far as to suggest excision of the fibrous tissue and reconstruction of the urethra. However, we have seen no such case report and believe such radical operation is seldom indicated. Infection of the bladder, if present, often clears up under dilatations with the routine regular bladder irrigations accompanying the treatments. Unless bladder symptoms are unusually severe it is better to dilate and irrigate every four or five days rather than to treat the bladder infection daily. We say this because so long as there is a stricture, infection is apt to persist or recur even if eradicated. Furthermore the stricture often causes bladder symptoms just as much as an infection.

### Summary and Conclusions

Formerly considered a somewhat rare lesion by gynecologists, surgeons, and urologists, recent literature shows that stricture of the female urethra is common in patients presenting urinary symptoms. Its incidence as estimated by various authors shows a wide variation, but is probably not less than 10 per cent. Aside from congenital narrowing of the meatus and the atresia of age, most strictures are the result of trauma, regardless of whether the trauma is mechanical, surgical, chemical or bacterial.

The pathological changes which take place in the urethra account for the local symptoms which in many cases are severe enough to throw the whole body out of balance, especially the nervous system.

Aside from prostatitis, prostatic abscess, and extravasation of urine, the symptomatology is identical to that in the male. More than 50 per cent of our cases had a bacterial cystitis which probably accounted for some of the bladder symptoms, especially when the stricture was of wide calibre.

Diagnosis of stricture at the meatus can often be made at a glance. In deeper strictures large catheters or bougies in graduated sizes should be used. We made the diagnosis in most of our cases by routinely using a No. 18 F. glass catheter.

Except in resilient strictures requiring repeated dilatations prognosis is good but complete recovery is rare.

Stricture of the meatus should be cut and the prognosis is unusually good. In deeper strictures gradual dilatation is the treatment of choice.

### DISCUSSION

**H. J. Farbach**, Louisville: Stricture of the female urethra may occur at any time of life.

Contraction at the vesical neck in infancy, with the resulting hydroureters and hydronephrosis, are being recognized, appropriate treatment instituted, and the life of the child saved. Some of these congenital contractions are at the external meatus and are found by careful examination.

As the essayist has remarked, stricture of the urethra in the female is such a simple thing that it is often overlooked in the search for something more complicated.

Take the case of Mrs. W., age 38, mother of three children, the youngest of which is eleven. She has had more or less urinary disturbance since her last delivery. She had an attack of influenza one week ago, frequency and tenesmus for three days, hematuria for the past thirty-six hours. Here is a picture of either a pyelonephritis or possibly a vesical papilloma. On attempt to pass the cystoscope the urethra was so tight that it had to be dilated first. Cystoscopy was so painful that a satisfactory picture of the bladder and ureteral orifices could not be obtained.

Symptomatic treatment and urethral dilatation were instituted, the acute condition and hematuria relieved, but subsequent cystoscopic examination and urinary study failed to disclose any pathology. Further dilatation relieved all the urinary symptoms.

Another picture: Mrs. F, age 32. History of urinary disturbance since childhood. She has been married twelve years with no children. She had an acute urinary disturbance eight years ago, and has had three operations at which her appendix, ovaries, tubes and uterus have been removed. Her chief complaint, urinary, has not been relieved.

Urinary study shows tight urethral stricture (12 F.) behind which was an infected submucous gland and considerable bullous edema of the vesical neck and trigone. Dilatation with destruction of the infected follicle has given her relief.

In elderly women, urinary disturbances are very often due to a tight urethra, and they can obtain a great deal of comfort from dilatation.

I am afraid all of us cannot agree with Folsom in his explanation of the cause and pathology of this condition. In my experience the gonococcus is not the "head man" in this show. Congenital defects, constitutional infections, injury at time of labor, have been more frequent etiological factors in my cases.

We often find prolapse of the urethra and caruncles associated with stricture, and when you find removal of a caruncle is not followed by the relief you expected, look for a contraction. At times the dilatation must be carried to a wide one, 40 or even 45 F., and must be persisted in before the symptoms subside.

I believe slow, gradual dilatation is the best. Never resort to divulsion unless it is necessary, and in these cases the treatment must be followed up for a long time.

In some cases the fibrosis is dense and seems to incorporate the entire circumference of the urethra.

Mrs. P., age 30, had had her operations, too. In singles or two at a time she had lost her appendix, tubes, ovaries and uterus. Chief complaint, urinary, still persisted. Examination showed a dense, tight stricture that occupied practically the entire middle third of the urethra. Long continued dilatation gave some relief, but it was of short duration. Finally we resorted to the radio knife, cutting completely through the fibrous tissue on the four sides of the canal. She had considerable reaction and postoperative discomfort. Three months later she reports that the symptoms have been much relieved and she feels as if she is getting well.

In our experience, bullous edema of the vesical neck and trigone is associated, in most instances, with stricture of the urethra, dilatation of which clears up the cystoscopic picture.

**Owsley Grant**, Louisville: I think Dr. Briggs has brought to your attention in his statistical table a great many of the types of obscure pains and disturbances that we have that are in reality traced to stricture of the urethra. I believe that in stricture of the urethra in the female especially there is almost always some kind of infection that is beneath the mucosa.

Excluding caruncle, stricture of the external meatus, I think most of the trouble in stricture of the female urethra lies just where it joins the bladder. In a good many of our cases that we have seen with stricture of the urethra, we have found coming along with them what Dr. Farbach spoke of in his last words, some type of bullous edema and growth at the neck of the bladder that is entirely of a benign type. These growths are ordinarily relieved by fulguration.

I believe that the thing that causes more frequently than anything else pain on urination with a perfectly clear urine in the female is a combination of this type of stricture which Dr. Briggs brings, which so often brings with it at the neck of the bladder this type of bullous edema, and, as Folsom has described, some regular villous growths which upon dilatation of the sphincter and fulguration of these cysts or growths so they are destroyed, practically always relieves the patient from the symptoms which she presents. That is to be well borne in mind, I think, when we have a case of frequency and irritation of the bladder neck, especially in the female.

**C. G. Hoffman**, Louisville: I know of no class of cases which give a Urologist more trouble than these female patients with urethral strictures. Invariably the condition seems to be accompanied by a neurosis so that tactful handling of the patient herself is quite as important as local treatment of the urethral condition.

As Dr. Briggs has pointed out, we were formerly disposed to underestimate the importance of the condition in the urethra in our enthusiasm for discovering possible trouble higher up in the urinary tract. This was impressed on me fourteen or fifteen years ago when a patient was referred to me for treatment of severe bladder irritation with hematuria, which had been treated for three years without permanent relief. In my first effort at examination I found myself unable to introduce the smallest observation cystoscope; consequently, I decided to defer the examination until the urethra had been dilated and this was all I attempted to do at the first session. The patient was delighted and I was surprised to find that this simple procedure had sufficed to give her complete relief.

As the essayist mentioned, some authorities believe that approximately twenty-five per cent of females suffer from stricture of the urethra. I suspect this figure is a little too high but doubtless the condition is extremely common.

We know that strictures of the urethra in the female, as well as in the male, are practically incurable and that, in spite of competent treatment, they are apt to recur from time to time often with symptoms which become very acute and distressing in as short a time as twenty-four to forty-eight hours after their inception.

Opiates relieve the distress. Certain dietary factors and particularly overindulgence in alcohol seem to aggravate the trouble greatly.

In the examination of any female patient with a chronic urinary condition characterized by irritability of the bladder, the urethra should be the first structure to be scrutinized. In my experience most of the strictures are at the meatus. Careful examination and, if necessary, treatment of the urethra will often prove the answer to the whole problem.

**W. T. Briggs,** (in closing): I wish to thank the gentlemen for their discussion and to say to Dr. Farbach that I agree with him regarding the part gonorrhea plays in the etiology: most of the patients reported in this list were private patients, and I know of but two of them that were definitely caused by a preceding gonorrhea. Gonorrhea of the urethra is usually not so much of the urethra as it is of Skene's glands, and usually if you cure Skene's glands you cure the gonorrheal urethritis.

Dr. Grant has brought out the point about the clear urine making us suspect a stricture. When a patient comes with urinary symptoms and a clear urine, you can feel almost sure that you have a urethral or a ureteral stricture to deal with. Of course, in rare instances you have a stone that is plugging one side, but they are so rare as to almost deserve no mention unless they have had a rather stormy time with the kidney on one side.

As to the duration, they are with you nearly always. I have tried to bring out in the discussion of the anatomy, that while the female urethra is developmentally like the male posterior urethra, in the lining of the canal it is more like the penile urethra and stricture there often has to be cut, and even then requires treatment nearly always. If there is a stricture deep down in the bulbus urethra, it will respond very well to dilatations and usually does not have to be cut.

**Intracistern Serum Treatment of Neurosyphilis.**—Viets believes that there are distinct advantage to the intracisternal serum method of treatment in neurosyphilis over other modes of therapy. The pain and sphincter weakness, often noted after intraspinal treatment, are avoided. By a careful checking of the tests in cerebrospinal fluid each time an injection is made, the amount of treatment necessary to bring the spinal fluid to normal and the general prognosis of the case can be accurately gaged. The method may be used as an office procedure, thus keeping the patient at his normal occupation. The results obtained are better than with most forms of treatment, especially in selected cases. Often rapid changes take place in the spinal fluid as the result of intracistern serum and as much is accomplished in a few months as is usually accomplished in a few years of intravenous treatment. The technic is not difficult to learn, but there are distinct dangers from the method in the hands of a careless operator. Treatment should be given not oftener than once in two weeks and should be continued until the spinal fluid has approached normal or is in its normal state.

## ABSCESS OF THE LUNG AND ITS TREATMENT*

Oscar O. Miller, M. D.

Louisville.

Pulmonary abscess is a suppurative process in the lung due to an invasion by pyogenic organisms, resulting in destruction of tissue and symptoms of sepsis. The organisms frequently implicated are staphylococci, streptococci, diphtheroid bacilli, spirochetes and vibrios.

The process may begin secondary to an intercurrent respiratory infection such as bronchopneumonia, or as a result of septic emboli liberated from a suppurative process elsewhere in the body. It frequently follows operations on the upper respiratory tract, either by way of emboli or the aspiration of infective material. It not infrequently develops in those individuals who come to operation with severe pyorrhoea and spirochetal infections of the gums. These organisms produce a gangrene of the lungs rather than a true abscess.

For the purpose of this paper I desire to separate abscess of the lung from suppurative interstitial pneumonitis. In abscess there is cavity formation, the lesion is more or less circumscribed and usually communicates with a bronchus that favors drainage. In suppurative pneumonitis the lesion is ill defined, more or less diffuse, without cavity formation and no perceptible drainage into a bronchus.

In abscess there is the usual history of having suddenly coughed up a large amount of sputum followed with relief of symptoms. In suppurative pneumonitis there is usually a dry, non-productive cough, later scanty expectoration that gradually increases in volume and followed by but little amelioration of symptoms. We must further distinguish abscess from suppurative bronchiectasis which is frequently complicated with a suppurative interstitial pneumonitis.

Symptoms: It is interesting to note that a number of patients with pulmonary abscess give no ascribable cause. They simply state that they contracted a cold which did not necessitate their going to bed, and the present condition gradually developed. It is quite possible that the bronchitis was complicated by a definite pneumonitis and probably a patch of bronchopneumonia. Few lung abscesses are diagnosed before they rupture and the spectacular expectoration of foul smelling pus occurs.

The usual symptoms are an elevation of temperature about the third day following operation that rapidly rises to 102° or 103°, accompanied with chilly sensations, sweats, a dry, non-productive cough and pain in the chest. About the seventh or ninth day the abscess may rupture into a bronchus and considerable pus, putrid or non-putrid be expectorated with marked relief.

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*Read before the Kentucky Stae Medical Association at Louisvile, October 3-6, 1932.

Lung abscess may conveniently be classified as acute and chronic and sub-classified as progressive, stationary or retrogressive.

Diagnosis: The diagnosis of lung abscess ordinarily presents no difficulty. A carefully taken history and a good sense of smell will invariably lead to a correct supposition. Confirmation is sought by physical examination, roentgenological and bacteriological investigations.

Lung abscess is characterized by the paucity of physical findings. Usually the signs are vague and indefinite. They depend entirely upon the position, extent and character of the lesion. The pleura is involved secondarily early and when this occurs, there is impaired resonance, enfeebled breath and voice sounds. Adventitious sounds may be entirely absent except for a few, fine pleural rales. When associated with an extensive suppurative pneumonitis and areas of consolidation, the physical signs are augmented to the point where dullness, tubular breathing, increased voice sounds and bronchial rales may be heard. Rarely are the typical medium and coarse post-tussals of pulmonary tuberculosis elicited, and when present phthisis should be considered as a factor to be ruled out.

Typical signs of cavity are rarely encountered in lung abscess; their presence again warrants a consideration of tuberculosis. At times it becomes imperative to distinguish lung abscess from pulmonary tuberculosis especially when the abscess occurs in the apex or upper lobe. The history of a recent onset without prodromal symptoms is suggestive of abscess. Copious amounts of purulent sputum point to abscess rather than to tuberculosis. If the sputum is foul smelling, this strengthens the evidence in favor of abscess. Clubbing of the fingers or curved parrot beak nails occur early in abscess of the lung when drainage is inadequate and is an important observation. Diminished or enfeebled breath and voice sounds and the absence of post-tussal rales are supportive of abscess.

On fluoroscopic examination or x-ray, a very definite fluid level that half fills the cavity is more suggestive of pulmonary abscess than of tuberculosis; whereas an air filled cavity warrants a consideration of phthisis.

Frequent examinations of the sputum for tubercle bacilli should never be omitted, and while cavernous tuberculosis is not infrequently encountered with a persistently negative sputum, their persistent absence in a purulent sputum is corroboratory evidence of a non-tuberculous lesion.

The roentgenogram is an indispensable aid in the elucidation of pulmonary pathology.

As a rough generalization we may say that any lesion above the third rib is to be considered as tuberculous until its non-tuberculous character is proved, and any lesion below the third rib is considered non-tuberculous until it is proved to the contrary. In connection with this observation, it is to be remembered that basal tuberculosis with cavitation occurs far more frequently than we were led to believe by the earlier writers. This is particularly true in the negro, and in first infections as represented by exudative tuberculosis.

In the interpretation of the roentgenograms, then, one first considers the location of the lesion, next its character. Is it exudative, infiltrative, consolidative, cavernous or non-cavernous? The reading of the roentgenogram is based on differential densities and for the benefit of the roentgenologist, it should be interpreted as such. In the final analysis, however, these doubtful lesions can only be intelligently comprehended in the light of history, symptoms, physical signs, and laboratory findings. On the film alone, then, all that one can say is that the weight of evidence is in favor of abscess but tuberculosis must be excluded or conversely it is tuberculosis, but abscess is to be considered.

Treatment: The treatment of lung abscess is primarily medical for the first six to eight weeks, under which approximately fifty per cent of patients recover. It consists of rest in bed, a full nutritious diet and postural drainage. For basal lesions the patient should be inclined at an angle of 45° with the affected side uppermost. The frequency with which this should be carried out will depend upon the severity of the case and the amount of sputum raised, usually two to four times daily, avoiding proximity to meals. It is necessary by experimentation to find that position which favors drainage in each patient. A correlation of the physical signs and roentgenogram with the patient's statements are helpful. Occasionally patients state they cannot lie in certain positions because it causes cough and copious expectoration; obviously that is the position they must assume for adequate drainage. Many patients complain of the odor and nauseating offensive taste to the sputum which seriously interferes with the appetite. Mouth washes and steam inhalations of creosote or menthol and Eucalyptus should be tried. A pan of charcoal in the room acts as an absorbant for the odor. Cough is to be encouraged but in the early stages, a non-productive, exhausting cough should be controlled with codeine in combination with a stimulating expectorant.

As a general body tonic ultra-violet radiation may be tried if a lamp is available.

A careful examination of the fresh sputum should be made for spirochetes and vibrios and if present, arsphenamine should be employed in the usual dosage. When recognized early and before much damage to the bronchi has occurred, recovery is usually prompt with arsphenamine.

If the lung abscess has not healed but remains stationary by the end of the sixth or eighth week, expectant treatment should be abandoned and more active intervention considered. In pulmonary abscess due to aspiration of infected material following operations upon the upper respiratory tract, early bronchoscopic drainage is of distinct value and frequently leads to prompt recovery. It should be employed more frequently and is especially recommnded where available, before undertaking the more serious surgical procedures. In those cases that exhibit intermitted drainage and exacerbations due to periodic occlusion of the bronchus either with tenacious muco pus, swelling of the inflamed mucosa or granulation tissue, bronchoscopic aspiration is particularly beneficial and may obviate surgical intervention. The secret of treatment in lung abscess is adequate drainage; when this does not occur, we must consider other methods to bring about the desired result.

In a consideration of active intervention, it becomes necessary to divide abscesses like Gaul into three parts. Those situated at the parenchyma are ideal for surgical approach, those close to the root for bronchoscopy and those centrally located for neither, but in which artificial pneumothorax is to be considered. In general the older the abscess the more dangerous it is to operate; the results are less satisfactory and they often require multiple operations and finally, thoracoplasty. The eighth week is considered the best time for operation.

In long standing cases a complete cure is hardly to be expected, symptomatic relief is ordinarily obtained. There is usually a residual bronchiectasis and pneumonitis that persists indefinitely. There is a divided opinion as to the value of artificial pneumothorax. In my own experience the results were negligible, owing to the fact the cases were long standing and pleural adhesions had already formed that prevented an adequate collapse. An abscess located near the parenchyma is a distinct contra-indication; adhesions form early inhibiting a collapse, organisms invade the pleura, and hence there is grave danger of a complicating empyema or pyopneumothorax. Since the centrally located abscess is more dangerous to operate and less amenable to bronchoscopic drainage, artificial pneumothorax is indicated. It is manifest that the objective sought is drainage of the abscess cavity, and only the central abscess communicating with a bronchus is available for this form of treatment; otherwise the secretions would be imprisoned and an extensive suppurative pneumonitis develop.

In suitable cases treatment should be instituted early before the cavity has developed a rigid wall, or much fibrosis has been laid down, as these inhibit collapse. An extensive suppurative pneumonitis and areas of consolidation are distinct contra-indications. Once pneumothorax has been instituted, it should be continued only when marked improvement follows its induction. The object of pneumothorax is to relax the lung and thus favor drainage; coincident with this there is contraction of the cavity and in time coaptation of the walls and healing. The pneumothorax should be carried sufficiently long to ensure this. If there is no amelioration of symptoms following pneumothorax, it should be discontinued in favor of other surgical procedures.

As a preliminary to more radical operation, phrenicotomy should be considered in all lower lobe lesions. The crushing of the phrenic nerve and the severing of the accessories lead to paralysis of the diaphragm, causing it to rise to a variable height into the thorax. This brings about pulmonary relaxation, increases expectoration and drainage from the affected area. If performed early in the surgical management of the case, it frequently induces marked improvement and in a number, symptomatic cure. In those cases that fail to heal following thoracotomy, it becomes necessary to resort to thoracoplasty to bring about obliteration of the abscess cavity.

In the management of lung abscess there is no strict medical and surgical division. The interests of the patient require the closest co-operation of internist and surgeon. Medical treatment should not be prolonged beyond reasonable expectations, and those simpler surgical procedures should be instituted early in progressive cases in the hope that more serious surgical intervention may be avoided.

Chronic lung abscess and suppurative lung is an exceedingly serious and disabling affection that carries a high mortality rate irrespective of treatment.

Prophylaxis: There are some indications that the incidence of pulmonary abscess following operations might be reduced by avoiding rough handling of the tissues at operation, and thus minimize the possibilities of emboli. Attention to pre-operative oral sepsis has reduced the incidence of post operative pulmonary suppuration at Mt. Sinai Hospital and is worthy of consideration.

### DISCUSSION

**M. J. Alexander,** Louisville: In discussing lung abscess the most striking feature that is at once presented is the comparative ease with which the diagnosis may be established, as contrasted with the problem of treating the condition and its complications.

There is such a division of opinion regarding treatment that one recognizes the fact that each abscess presents a problem quite its own.

Many cases do undergo a spontaneous cure on bed rest or bed rest combined with postural drainage. This fortunate group is variously estimated as from 30 to 50 per cent. This being true, the more conservative one is the more likely he is to lean too strongly to the so-called medical cure alone.

All abscesses during the acute stage should be given expectant treatment of from two to six weeks, but only the most vigilant supervision during this period will enable the physician to determine just what results he is obtaining, and the only sure method of supervision is to subject the patient to frequent fluoroscopic or x-ray examinations, for as Dr. Miller has pointed out, this condition is noted for lack of physical signs, and even with the patient apparently draining well the lesions may be extending.

A peripherally located abscess in the chronic stage, that is to say of more than six to eight weeks duration is ideal for surgery.

As regards pneumothorax as a therapeutic method there is even a greater diversity of opinion. Lilienthal and Neuhof consider it very dangerous procedure, and that as such it should be abandoned. On the other hand, J. J. Singer reports satisfactory results with its use in selected cases. It must be understood, however, that pneumothorax as applied to lung abscess is quite a different procedure to that employed in the treatment of pulmonary tuberculosis. In abscess a low tension is maintained, only small amounts of air are given for the purpose of inducing relaxation of the lung. Furthermore, the treatment is not usually continued for any great length of time and in any case that does not improve shortly its use should be discontinued and other procedures instituted.

**Paul A. Turner,** Louisville: Mr. President and Members of the Society: Dr. Miller, as usual, has given a complete resume of the entire subject of lung abscess. There are so many points that he has brought up that it is difficult, I am sure, for most of you to assimilate all of them. It is then, I believe, a good thing to pick out two or three points and emphasize them.

The first thing that I want to say is in regard to the diagnosis. I do not want anyone to forget that the x-ray is highly necessary. So many of these cases give, as Dr. Miller says, a dearth of physical signs, and if your patient is sick, possibly spitting up this foul sputum, possibly not as he admits that they are not all foul smelling, the x-ray helps to a tremendous extent in determining the cause of the disease.

As far as the treatment is concerned there are different forms of abscesses and they are located in various places in the lung. Where the abscess exists determines in a great measure the treatment. For instance, if you have an abscess at the periphery of the lung, if you can imagine that this illustration is the lung, there is no communication with the bronchus, therefore it is useless to try postural drainage or to try bronchoscopy on such a case; you can't drain it; therefore it is a surgical case; those cases must be operated on.

Again, if you have an abscess low down, near the hilum, communicating with a bronchus, this may be possible to cure with bronchoscopy and postural drainage; sometimes it isn't. If you attempt to do a phrenic neurectomy on this sort of case, what happens? The diaphragm is raised perhaps three inches, the abscess is raised, the bronchus is crooked, and the drainage is automatically stopped by your operation and you will kill the patient. Don't do it.

If you have an abscess up further in the lung near the hilum, this can be satisfactorily compressed in a certain number of instances by artificial pneumothorax, but it must be done very, very carefully. The bronchus draining the cavity must not be blocked by compression. Therefore, as I say, that must be done very carefully, and personally I would much rather do something else.

If you have an abscess in the top and which drains nicely into a bronchus, this, I think, is very susceptible to treatment medically with postural drainage and bronchoscopy.

What Dr. Miller said in regard to carrying on your medical treatment is perfectly true in what ever abscess exists. That is, an acute abscess can be called an acute abscess for five or six weeks; then it goes over, we may say, into a chronic stage. If you cannot make a cure or radical improvement of a case with persistent medical treatment in six weeks then turn it over to the surgeon for radical surgery.

**Gaylord C. Hall,** Louisville: I enjoyed Dr. Miller's paper very much. I felt like giving three ringing cheers when he said that it was a wise plan to use the bronchoscope early. I have been the unfortunate possessor of eight or nine of these cases of abscess of the lung in the past few years. They all came to me late.

I have never seen a case, Dr. Miller, of abscess of the lung that was sent to me for bronchoscopic treatment that was less than twelve months old. I am not wildly enthusiastic about the results that I have obtained in these old cases.

A youngster I have is about nine years old; she has been under treatment since last spring.

Aside from a cough she is symptom free; she has no pain, no loss of weight, she is gaining weight, she has the typical club fingers, and had them when she first came in. The amount of her sputum is very markedly reduced; the odor has disappeared. I see no reason for radical lung surgery in that child, even though I can't say that her abscess is well. She is practically symptom free.

The other cases that I have seen have been cases of multiple abscess which are markedly unfavorable, cases with extensive pneumonitis, and those cases, especially in people past middle age, all do badly and most of them die.

There is one thing that Dr. Miller did not mention in his paper, namely, the abscess formation, the result of foreign bodies in the lung. These abscess formations being distal to the foreign body clear up very rapidly following bronchoscopy and removal of the foreign body.

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# DIVERTICULITIS OF THE CECUM WITH REPORT OF A CASE*

Joseph M. Frehling, M. D.

Louisville.

B. P. Female, Age 51, Examination made 7-20-29.

## History

For several years, patient has had recurrent attacks of vague abdominal pains, never particularly severe. Alternate attacks of constipation and diarrhea. Under observation of physician some months prior to present illness, who made complete study, including gall bladder visualization, and complete gastro intestinal study without definite findings.

Present illness began about one week ago, with pain in the abdomen, which was rather severe at times. There was considerable nausea but no vomiting until today. Marked constipation. Has taken a number of purgatives, but no results. Early this evening, patient began having chills, pain became progressively worse and patient evidently lost ground rapidly. She then called family physician, who in turn called the essayist.

## Physical Examination

Poorly nourished, poorly developed, white female adult, age 51, lying in bed, evidently seriously ill. Patient is stuporous and toxic and cooperates poorly. Temperature 102, pulse 140, b. p. 135 over 100; vomiting. Abdomen not distended. There is a mass about size of a grapefruit, smooth in outline, firmly fixed, and exquisitely tender in L. R. Q. in an area corresponding to McBurney's point. L. C. 18,000, differential 88 per cent polys.

## Diagnosis

Ruptured appendix with abscess formation.

## Operation

Abdomen opened through lower right rectus incision. Appendix normal. There is a large, smooth mass involving the lower part of ascending colon and cecum, firmly adherent to parietal peritoneum in the right side of pelvis. There is evidence of recent perforation with marked inflammatory reaction extending out into parietal peritoneum. There is marked enlargement of the mesenteric glands extending to considerable distance beyond the tumor.

Operative Diagnosis: Perforated carcinoma of the cecum and ascending colon.

Operation: Resection of the cecum, ascending and proximal half of transverse colon and distal six inches of ileum, with ileo-sigmoidectomy by lateral anastomosis. Drainage with two cigarette drains through stab wound. Original incision closed. Patient fully recovered.

Result: Recovery.

Pathological Report: Specimen consists of distal 12 c. m. of ileum, appendix, cecum ascending colon, and 14 c. m. of transverse colon. In the posterior wall of the cecum, 2 c. m. above the level of the ileo-cecal valve is the orifice of a diverticulum. The orifice is practically closed by scar tissue, but leads into a cavity which contains a fecolith about three c. m. s. in diameter. The wall of this cavity is infected and forms quite a large tumor mass in the posterior wall of the gut and surrounding fat. This inflammatory mass extends downward to the appendix which is included in the inflammatory mass, but the lumen of the appendix is patent and apparently the appendix was incorporated in the inflammation by extension from the diverticulum downward. The wall of the cavity varies from 2 to 4 cms. in thickness; it is light colored and very firm. The lumen of the ascending colon is encroached upon but not entirely occluded. The posterolateral surface of the granulomatous mass is perforated and covered by recent fibrinous exudate.

## Microscopic Description

Mass is made up of connective tissue chiefly, varying in age. In different places throughout it are localized infiltrations of lymphocytes of various types. There has been much necrosis with repair and granulation tissue. The inflammation is extending out into the mesentery, forming large scar, with a diffuse lymphocytic infiltration still persisting. There is no evidence of neoplastic growth anywhere. Section of the appendix shows only a little increase in connective tissue in the outer coat. The process is entirely inflammatory and resulting from a fecolith formed in a diverticulum as described above. The inflammation extended to the surrounding area and included the appendix, but the inflammation did not begin as appendicitis.

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*Read before the Kentucky State Medical Association at Louisville, October 3-6, 1932.

MICROSCOPIC DIAGNOSIS

Diverticulum of the cecum with recolith formation, perforation and chronic inflammation.

Diverticulitis of the cecum is one of the rarer abdominal conditions which is seldom found in medical literature. It is, therefore, the purpose of this paper to call attention to the fact that diverticulitis does occur in the cecum and should be considered in the differential diagnosis of many cases of right sided abdominal lesions.

The etiology, pathology, and symptomatology of diverticulitis of the cecum are essentially the same as diverticulitis elsewhere in the colon, so that the following general description applies to any location in the large bowel.

Diverticulitis is a condition which has now passed out of the realm of doubt and uncertainty into that of proved and accepted fact. It has an important place in medical literature, and in the experience of every operating surgeon of large practice. This last statement is not as yet true of all clinicians, some of whom are still apparently unaware of the condition, and not a few of its frequency and clinical importance. Not until a morbid condition is described in all the ordinary student textbooks of medicine and surgery can it be said to have attained complete recognition, and this is not the case with diverticulitis.

Diverticula of the intestinal tract has been noted by various observers for more than a century, but for the most part as isolated cases, often obscurely buried in the literature. Some of these have presented features of considerable clinical interest, but the condition was looked upon as a rare pathological curiosity of no real clinical importance. This aspect of diverticulum formation in the large bowel was first given prominence by Graser in 1898, who showed that such cases are not very uncommon, and are of great importance. In particular, he described the hyper-plastic stenosing type known as peri-diverticulitis, and its simulation of carcinoma of the sigmoid flexure. Shortly after this, the subject was extensively studied in America, where Beer, Fisher, and others made contributions to the etiology, and the Mayos, Wilson, Brewer, Giffen, and others to the clinical aspects. Also Patel in France and Moynihan in England. The last observer in 1907 published the first case in this country of peri-diverticulitis, causing a mimicry of carcinoma, and moreover laid very special stress on the role of the diverticulum in causing non-malignant vesico-sigmoid fistulae.

In 1908, for the first time, the recorded cases were collected and analyzed, and the pathological changes and clinical results correlated and classified. Prior to this, observers had, for the most part, dealt with special and isolated aspects and results of the condition. This classification has furnished the basis for most articles of importance written since that date.

One does not wish to overdraw the picture of a condition which is not of every day occurrence, but diverticulum formation in the intestinal tract, especially in the large bowel, and very particularly in the sigmoid flexure, besides having a complex symptomatology of its own, enters into the consideration of many other pathological processes and syndromes.

Diverticula of the gut are divided into congenital, of which Meckles is the type, and acquired, the chief anatomical difference being that the former are composed of all three coats of the bowel, while the latter have been described as hernial protrusions of mucosa and serosa only. This is not strictly true, however, as very many examples of acquired diverticula have now been described into the structure of which all three coats of the intestine enter, and this is probably very frequent in the earlier stages of their formation.

The consensus of modern opinion leans to the view that acquired diverticula of the whole intestinal tract, from esophagus to anus, owe their origin to similar tendencies, and are but local variations of the same morbid process or processes. The results of the presence of diverticula vary greatly with their site of origin. In the small intestine, their occurrence is practically devoid of secondary changes or clinical symptoms, and the reason is undoubtedly to be found in the fact that in this region of the bowel, they rarely have permanent fecal contents. This tendency to be filled with and to retain feces is the leading characteristic of the diverticula of the lower bowel, and from this fact almost all their secondary pathological and clinical importance is derived.

In this study, I shall limit myself to the consideration of diverticula in the lower bowel. Here they occur in the appendix, cecum, all sections of the colon, with overwhelming frequency in the sigmoid flexure, in the rectum and even in the anal region. In the sigmoid, it is the distal rather than proximal portion which is affected; often it is the last few inches.

The diverticulum starts as a hernial outpushing of the mucosa, either through or accompanied by the muscular coat and, of course covered externally by the serosa. No great size is, as a rule, attained; it varies from mere microscopic visibility to the size of a plum-stone; they may, however, in more rare instances, as will be demonstrated later, attain almost huge proportions.

These small diverticula, which are potential for mischief out of all proportion to their size or number, are still further concealed by their frequent occurrence in fat laden gut, particularly so when they enter the appendices epiploicae. As has been emphasized, they mostly contain feces of varying degrees of hardness and inspissation, often actual calculi. Their naturally concealed positions help us to understand the infrequency with which the condition has been noted in the past.

Until quite recently, many morbid anatomists of experience have been quite unaware of their occurrence. If looked for, they will be found not infrequently by anyone making a considerable number of post mortem examinations. But in the majority of autopsies, the sigmoid flexure is a neglected and little explored region and the rectum even more so.

What is the cause of the diverticulum formation? Much controversy has ranged around this question, and I do not propose to do more than briefly summarize the arguments and conclusions. Two main views at present hold the field, and they are by no means mutually exclusive. No observer is of the opinion that the diverticula are entirely of congenital origin, though some facts lend support to the view that there may be in some bodies a congenital predisposition to their formation. The view that is most widely held is that the diverticula are essentially "pulsion diverticula" that is, are the result of increased pressure within the bowel; this may be due to the accumulation of feces or the presence of pus. The site of election in the lower sigmoid is alone a great factor in support of this view, for here the fecal stagnation tends to be greatest. It is the chief delay point in the intestines, the stools are becoming firmer and less moist, and the formation of gas is frequent and often considerable. It seems impossible to dissociate the frequent implication of the sigmoid flexure from the physiological role of that structure. In support of the increased pressure theory, the frequency of constipation in the case histories is adduced. But it is absent not infrequently, and in some cases actual looseness of the bowels has been the rule. Moreover, constipation is exceedingly common, and diverticula relatively rare; therefore, some other factor must be sought. Constipation is more common in women than in men, yet sixty-eight per cent of the cases reported were in males. It is easy to insist unduly upon the increased pressure view. There must always be a definite pressure from within outward in the bowels; and it is obvious that the formation of acquired diverticula must be determined by the ratio between the resisting power of the intestinal walls and such internal pressure. Therefore, anything such as constipation, tending to increase the pressure, will tend in the direction of diverticulum formation. Likewise, the frequency with which the condition is found in association with weakened musculature, namely fat laden gut. This furnishes a fairly conclusive explanation of the great tendency of the diverticula to invade the appendices epiploicae. On the other hand, Houseman has commented on the cachectic condition of many subjects. But in both obese, cachetic and emaciated subjects, the point in common is probably a weakened musculature. This helps us to see the chief cause in the ratio between pressure from within and strength of the gut wall, rather than any great increase in the one or serious defect in the other.

It is not impossible that a congenital predisposition to diverticula may occur. A great argument against the congenital view has always been the fact that most cases occur at an advanced age. Senility certainly favors the condition, and Houseman showed that diverticula could be produced experimentally in senile intestines but not in those of young subjects under similar conditions.

Once the anatomy of the diverticulum has been appreciated, together with the tendency to fecal retention, the secondary changes may almost be anticipated on theoretical grounds. When these pathological processes are in their turn appreciated and understood, the varying clinical types of case may be deduced and predicted from a consideration of such anatomical and pathological details.

Owing to the usual shape of the diverticulum, a sac with a narrow neck, the fecal contents tend to be retained and this retention occurs usually in that portion of the bowel where the fluid content tends to be lessened. Consequently, they frequently become hard, often forming concretions of stony hardness. This process leads to certain mechanical results, the main one of which is perforation; but the most frequent secondary change is an inflammatory process of varying type and intensity. This is always due to the mechanical irritation of the fecal mass, combined with the presence of micro organisms. The sacs are very imperfectly drained, not only from the usual narrow neck, but sometimes also owing to an inflammatory or toxic edema of the lipped orifice. In this way is determined either an acute or gangrenous inflammation of the diverticulum, or a latent or chronic one. Sometimes the inflammation is of the slightest, yet is enough in a thinned diverticulum to permit the passage of micro organisms to the peritoneum, setting up an acute or general peritonitis. In addition to an inflammation of the sac wall, there is very likely to occur a low grade chronic hyper-plastic inflammation around the diverticulum. This process may become very marked and may surround a section of the gut with a constricting band of fibrous tissue, leading to tumor formation by its hyperplasia, and stenosis of the gut by its contraction. To this the term peri-diverticulitis has been applied. Precisely comparable to this process is that which occurs in hyperplastic tuberculosis of the cecum. So close is the resemblance that cases of chronic peri-sigmoiditis of this type have erroneously been described as being of tuberculous origin, or cancer clinically. In considering the differential diagnosis of these two conditions it would be well to follow the rule that this form of tuberculosis is so rare that all cases of so-called hyper-plastic tuberculosis of the sigmoid are probably examples of peridiverticulitis, unless the tuberculous nature of the lesion is reasonably proved. Put another way: an uncertain peridiverticulitis is much more probable than an uncertain hyper-plastic tuberculosis of the sigmoid flexure. It is not difficult to understand that the discovery of such a matted, hopeless looking mass, following upon symptoms of chronic or sub-acute intestinal obstruction, has again and again lead to the incorrect diagnosis of malignant disease. It is safe to assume that prior to the knowledge of the occurrence and potentialities of the diverticula, almost every one of such tumors was regarded as malignant. In consequence, surprising cures were noted from time to time, and I daresay that today many specimens repose on museum shelves wrongly labeled.

One very important difference between the carcinoma simulating mass of peri-diverticulitis and true carcinoma formation is the absence in the former of ulceration of involvement of the mucous membrane. Seldom is an exception of this noted, and when present, it may occur as the result of reentry of fistulae and abscesses into the bowel.

A few cases of acute peritonitis have been recorded in which the source was undoubtedly an inflamed diverticulum, through the damaged walls of which organisms had passed into the general peritoneal cavity. All recent investigators have come to the conclusion that organisms do not so pass unless the intestinal wall be damaged or inflamed. In the case of a diverticulum, not only is there usually a damaged and inflamed wall, constantly irritated by fecal friction and pressure, but the wall itself is greatly thinned. The point is a practical one for, like that of the existence of diverticula in general, it must be borne in mind by the operating surgeon when faced by a general peritonitis of unknown origin.

The association of carcinoma with diverticula is a highly interesting and important one. It has been suggested that the irritation and inflammation of the diverticula furnishes a special predisposition to the development of cancer, which would not have developed but for the presence of a diverticula. It has been demonstrated that carcinoma develops from the isolated epithelial areas in the bases of gastric ulcers and the same causation is highly probable in the case of primary carcinoma of the tip of the appendix. Undoubtedly, segregation of epithelium occurs with frequency in inflamed diverticula. When the blood supply of such islets is interfered with the epithelium dies; but if it has an adequate blood supply, proliferation is the rule, and an adeno carcinoma might result. Suffice it to say that a number of such cases have been recorded, and it is highly probable that a great many more have been overlooked.

Enough has been written up to this point to emphasize the fact that a knowledge of diverticulum formation must be indispensable to a clinician, and the variety and complexity of the secondary pathological processes make it certain that the symptoms and clinical phenomena generally will be confusing. At the same time, the majority of cases conform more or less exactly to one or another of the clinical types. Speaking generally, diverticulum formation was discovered, rediscovered and noted from time to time by morbid anatomists; isolated examples of secondary processes were similarly noted. But the full significance of the diverticula was not realized and measured, and certainly the subject was not grasped as a complex but complete whole until recent years. It was not until clinicians, in this instance almost exclusively operating surgeons, found themselves confronted with lesions of an unusual type and abdominal happenings of a kind difficult to explain that specimens were investigated with special care and the results recorded. By a study of these records, we find that the following types of case comprise the majority of diverticular lesions.

1. Inflammatory trouble in the left lower quadrant and in the right lower quadrant.
2. General peritonitis.
3. Vesico colic fistula.
4. Pelvic syndromes.
5. Intestinal obstruction.
6. Mimicry of carcinoma.

### 1. Inflammatory Trouble

Cases of this type constitute by far the largest group, and the other clinical types, obstructive, peritonitic, fistulous, and pelvic are not infrequently mere sub-groups of this main type, in that they represent the end results of a case that for months or years has exhibited symptoms. Erdman has gone so far as to say that the occurrance of left sided pain, with or without mass, but with tenderness and rigidity, is practically pathognomonic of diverticulitis.

Symptoms of the inflammatory lesion: In the first place, it is important to note that the symptoms from the intestinal lumen are not to be expected in the early stages of the process. Stenosis takes a long time to develop into symptomatic obstruction, and the great infrequency of involvement of the mucosa has already been noted.

Pain: This of one kind or another is very frequent. It is referred in most cases to the left iliac fossa; very suggestive is its colicky and recurrent character. There may be only a single attack of pain, as in the gangrenous or acute cases, but there are frequently many attacks, spread over periods of months or years.

Tenderness: This is an extremely frequent symptom elicited by palpation and is usually accompanied by more or less definite muscular rigidity.

Tumor: This has been noted in 30 per cent of the cases. A specially characteristic tumor is an elongated or sausage-shaped one lying just above and parallel with Poupart's ligament. In size it varies greatly, having been noted as large as a child's head. It may be fixed in the pelvis and mistaken for an ovarian or other pelvic tumor. It is usually more or less tender and is not as a rule mobile. A feature of this tumor is its variability. It may appear and disappear, even several times, and such a recurrent tumor, with the usual concommitants of inflammatory trouble in this area, is a specially diagnostic feature.

Abscess: This is of very frequent occurrence and frequently leads to tumor formation. It is responsible for the pyrexia and leucocytosis, and also for the sudden and spontaneous disappearance of both tumor and symptoms, by spontaneous discharge through bowel or other viscus or externally.

Fever: This is usually moderate and irregular. It may be manifested as irregular attacks over a number of years.

Leucocytosis: This is frequently met with and with fever is a valuable point in the differential diagnosis from cancer, though cancer itself in this region is liable to be accompanied by inflammatory phenomena, making the diagnosis one of great difficulty or impossibility.

Stools: Constipation and diarrhea have been discussed; the important point otherwise is the absence of visible blood over prolonged intervals. Though blood has been noted in some cases, its presence is so exceptional that it should give rise to the greatest reluctance in diagnosing diverticulitis as opposed to carcinoma. Its absence is, of course, due to the fact that the mucosa of the bowel is so seldom involved.

Bladder symptoms: Apart from actual fistulous communications with the bladder, which constitutes a separate clinical group, there are frequently symptoms of bladder irritability probably due to the nearness of inflammatory foci or to actual adhesion.

Pelvic symptoms: These are of some frequency and sometimes make the clinical feature.

### 2. ACUTE GENERAL PERITONITIS

This is not infrequent and is usually a lethal complication of a diverticular perforation. It may be mainly mechanical in origin or the result of the gangrenous sloughing of a diverticulum or a diverticulum containing appendage. This latter possibility must be kept in mind for only the hole in the bowel may be visible in operation and no doubt many cases of assumed perforation of a solitary ulcer have had this origin. The practical point is that any such finding at operation should lead to a search for the presence of other diverticula which may be on the verge of perforation.

### 3. VESICO COLIC FISTULA

In a large number of cases, adhesion takes place between the bladder and the sigmoid. The adhesion may be direct or through a more or less dense fibrous mass, or an intervening chronic abscessed cavity. The mass may be tunnelled by diverticula. These adhesions may cause no bladder symptoms, but in a number of diverticulitis cases, vesical irritability which may be transient, has been noted. Sometimes, however, the adhesion goes on to perforation, so that by the diverticular channel, a fistulous communication between the gut and the bladder may occur, with consequent passage of air and feces per urethra. Some of these cases undergo spontaneous recovery.

Like all else connected with the pathology of diverticula, the fact that they were not only a cause, but a relatively frequent cause of vesico colic fistula, was long overlooked. Moynihan was the first observer in England to emphasize the diverticular origin of vesico colic fistula. Whereas in these cases a diagnosis of carcinoma was formerly irresistable, the fact is that a careful study of the records reveals that the majority of these cases are inflammatory in origin.

### 4. PELVIC SYNDROMES

In the last few years, much attention has been drawn to the relationship between sigmoidal and pelvic diseases. The anatomy and mobility of the sigmoid loop will make it probable that inflammatory processes originating therein may cause adhesion with or spread to or otherwise involve the pelvic viscera. The literature and cases bearing on this relationship separate out three types of case, (a) inflammation primary in sigmoid loop and involving adnexa and uterus; (b) inflammation of genitalia involving sigmoid, and (c) a sort of sigmoido-salpingitis in which inflammation starting in either augments or doubles the lesions.

### 5. Intestinal Obstruction

Many cases present themselves clinically in this guise, with obstruction either as the first important symptom, or consecutive to a varying period of inflammatory symptoms. The obstruction may be acute and may then be due to obstruction of the small intestine by bands. Acute obstruction may suddenly supervene in a sigmoid which has been developing stenosis for years past. More often, the obstruction is recurrent, partial of subacute, the final stage of repeated threatenings.

### 6. Mimicry of Carcinoma

The stenosis which causes obstruction is frequently palpable as a tumor, and it is this clinical factor which leads so frequently to a mimicry of carcinoma. The differential diagnosis is frequently impossible, but with a full appreciation of the facts, correct diagnosis can, not infrequently, be made positively. The chief points in differential diagnosis from a carcinoma may be summarized as follows:

1. The absence of the shadows of malignancy from the general picture.
2. Tendency to obesity and maintenance of good nutrition generally.
3. Long history of attacks of abdominal pain in the left lower quadrant.
4. History of tumor formation with subsequent disappearances.
5. Absence of visible blood in stools over a long period.
6. Presence of a vesical fistula in which malignancy can be excluded by cystoscopy.
7. Negative sigmoidoscopy as regards malignant disease.
8. Pyrexial attacks.
9. X-ray demonstration of diverticula.
10. The presence of neutrophilic leucocytosis.

In carcinoma of the sigmoid, loss of flesh is early, pain and tenderness late and are often preceded by tumor.

There are certain other conditions which have to be considered in arriving at a differential diagnosis. They are, (a) hyperplastic tuberculosis; (b) actinomycosis; (c) syphilis; and (d) pelvic conditions generally.

Hyperplastic tuberculosis is extremely rare in this section of the bowel; its incidence is almost confined to the cecum. Consequently, in any suspected cases, one must be assured that diverticulitis has been carefully excluded and that the evidences of tuberculosis are such as to make that diagnosis reasonable.

Treatment: This is comprised in a single word—surgery—unless operative interference is specially contra-indicated. I shall not venture to indicate what particular surgical procedure is indicated in special cases, but content myself with more general remarks. In view of the potentiality for mischief of diverticula, all diverticulum bearing gut should be removed. At operation, search should be made, whenever possible, for further diverticula. Recurrence after operation has occurred, presumably from neglect of this point. It should be borne in mind that there seems to be a special liability to post-operative peritonitis, possibly due to the chronic infection of the inflamed tissues in some cases. Care should be taken in handling the gut, as at least one instance has occurred of rupture of a diverticulum by surgical traumatism. The good results already obtained in certain bladder fistulae should stimulate surgeons to deal with such cases. Lastly, no case of supposed carcinoma of the lower bowel must be regarded as inoperable, either before or at laparatomy, unless diverticulitis has been remembered, fully considered and systematically investigated and excluded.

## DISCUSSION

**Irvin Abell, Louisville:** I listened with considerable interest to the excellent presentation of the subject by Dr. Frehling.

Diverticulosis connotes the presence of diverticula. Diverticulitis indicates inflammation in one or more of the diverticula. Diverticulosis is a rather common finding. As indicated by the essayist, practically all that we know of the surgical aspect of the disease has been written within the past ten to fifteen yars. The first paper dealing with the surgery of the subject was published by Beer in 1904, although anatomists and pathologists had described the presence of diverticula a good many years before this time.

We know now as the result of clinical investigation and, as well, of x-ray examination, since this has become a routine procedure, that diverticula are present in five per cent, practically, of all people beyond the age of forty, and that of this number from twelve to fifteen per cent develop an inflammation in the diverticula.

With this tremendous frequency it is rather surprising that the surgery of the subject has not received attention until in the past two decades, when the greater portion of the writings have appeared upon diverticulitis.

There is considerable discussion and no unanimity of opinion as to its causation. As just stated, five per cent of all individuals over forty will show the presence of diverticula, and yet instances have been recorded in children under seven years of age.

Dr. Frehling referred to Erdmann's article; he reports one under seven. Ashurst reports one just a few months beyond seven, and others are in the literature. In the cases examined at the Mayo Clinic there were 1986 patients under the age of forty who presented diverticulosis, not necessarily diverticulitis.

The presence of diverticulosis carries a very definite hazard to the individual. In the colon, which is by far the most frequent site of diverticula, they occur all the way from the cecum to the rectum; they are common in the esophagus, uncommon in the stomach,not infrequent in the duodenum, occasionally seen in the jejunum, observed rather often in the ileum in the shape of Meckel's diverticula, and reach their greatest profusion in the colon. Eighty-five per cent appearing in the colon are in the segmoid and rectum, the remainder being distributed through the descending, the transverse and ascending colon and the cecum.

Houseman has described one case observed at autopsy in which over 400 diverticula were counted. Upon studying the x-ray films one notes that in the descending colon and sigmoid it is unusual to find a single diverticulum and quite common to find many, many diverticula present. So it is perfectly possible for an individual to have one diverticulum inflame at one time and a second diverticulum at another. In fact, repeated instances have been observed in which perforations of diverticula have occurred, been subjected to operation, and the same patient subsequently come back with a second perforation of another diverticulum.

The clinical types as described by Dr. Frehling I think might be still further simplified by putting them in four groups, acute diverticulitis, chronic diverticulitis, what he spoke of as the sclerosing or obstructive diverticulitis, and, that associated with carcinoma.

There is some difference in opinion among those who have had experience as to the proper method of procedure in acute diverticulitis. An acute diverticulitis may result in resolution, in perforation, in abscess formation, and in the various fistulae.

Dr. Frehling spoke of the enterovesical. We also have the entero-enteric and the enterocutaneous fistulae and have seen instances of all three varieties in the cases which we have had the opportunity to observe.

With acute diverticulitis, that occurring on the right side will almost invariably be subjected to immediate operation because of the mimicry of appendicitis. With that occurring on the left side it becomes a question as to whether one should subject the patient to immediate operation or should pursue a waiting policy in the hope that resolution will occur. Personally I am rather inclined to agree with those who believe that in the acute inflammations the wisest course to pursue is immediate operation, because perforation occurs, peritonitis, abscess or fistulae follow adding to the gravity of the patient very materially.

In the acute obstructions from diverticulitis, the first indication, of course, is the relief of the obstruction by an enterostomy proximal to it. It is rather surprising in the acute inflammatory obstructions depending upon diverticulitis to note the number that will undergo recession or resolution merely by putting the bowel at rest, draining it by an enterostomy above the point of inflammation; so much so that subsequently when one opens the abdomen or comes to examine the patient, he finds that the mass has disappeared. This is the explanation, doubtless, for the spontaneous cure of so-called sigmoid carcinoma that one finds in the literature ante-dating this century, following an enterostomy, a tumor thought to be carcinoma, on later examination had entirely disappeared. So in an obstruction due to a sclerosing type or the acute type of diverticulitis, enterostomy by all means, and later, if necessary, the removal of the obstructing section.

I don't know of more difficult operations than those that are entailed by the fistulae formation which results from diverticulitis. Granting that the fistulous communication between the sigmoid and the bladder is high up on the sigmoid and high up on the posterior wall of the bladder, they may be sutured with comparative ease, but when the perforation has occurred low down on the sigmoid and at the base of the bladder, I don't know of a more difficult operation than the repair of this would involve. I myself have declined it in one or two instances, preferring to do a permanent colostomy rather than to endeavor to separate and suture the structures at this great depth when they have been so grossly distorted by the inflammatory deposit which invariably accompanies fistula formation at this site.

I have one more minute, and that will be devoted to the occurrence of carcinoma with diverticulitis. Dr. Frehling has brought out very clearly the difficulty in making a differential diagnosis. I would only emphasize this: If there is a question of carcinoma there should be no question of delay in operating. It is true that about fifteen per cent of diverticultis cases do show hemorrhage at some time in the stool, and when hemorrhage is present which can be demonstrated by the proctoscope to come from above the anal canal, the question of carcinoma must of necessity be considered.

In the recent series of statistics that have been compiled, the incidence of carcinoma in association with diverticulitis, varies from two to eight per cent. In any event, I would urge that when the presence of blood in the stool is noted, in that particular instance exploration should be carried out; and certainly it should be carried out at an early period.

Again, with carcinoma that has undergone inflammatory changes, possibly perforation into the tissues around it, the difficulty of making a distinction between this and an acute diverticulitis is such that it is often impossible until the abdomen is opened. If one may be certain of the absence of carcinoma, the patient with diverticulitis may be prepared by enterostomy, by rehabilitation, until such time as a resection of the portion of gut that is stenosed may be carried out with reasonable safety. The mortality here will be comparable to resections for other lesions, regardless of what they may be.

As to getting all of the diverticula; that in our experience has been possible only when they were limited in number and involved a small segment of gut. As stated, in the left colon the number will vary from one up to one hundred or more, so if one endeavors to get all of the diverticula that are present he oftentimes winds up by doing practically a colectomy. The practical part of it, as I see it, in so far as attacking the problem with surgery is concerned, is to remove the diverticula that are actually diseased, to take out the section of bowel that is fibrosed and sclerotic, and to let the remainder alone, depending upon a properly supervised diet, the administration of some of the petrolatum preparations, the use of some of the soothing enemas, such as olive oil, and enjoining care and co-operation on the part of the patient in the hope that he or she may in the future avoid the complication of infection in the remaining diverticula.

**C. W. Dowden,** Louisville: Diverticula of the intestinal tract are small hernial protrusions of the mucosa of the intestine through the muscular coat. When they are not accompanied by clinical symptoms the condition is referred to as diverticulosis and when these small bud-like pouches become irritated or inflamed the condition is referred to as diverticulitis. It is impossible, therefore, to discuss diverticulitis of the colon without frequent mention of diverticulosis.

Concerning the two prevailing views mentioned by the essayist as to the cause of this condition it seems reasonable that both may act as factors. That there is a congenital predisposition to cause inherent weakness of the musculature seems probable (notwithstanding the fact that the condition is rarely found in the first and second decades) and such weakness combined with the pressure of feces and gases in the intestine seems likely to be responsible for the condition. Furthermore, since the fecal content of the sigmoid is harder than in other parts of the colon and the greater pressure, which represents the act of defecation, forces the fecal matter into these sacules, thus producing irritation and inflammation, seems to satisfactorily explain why diverticulitis is overwhelmingly present in the sigmoid, whereas diverticulosis is fairly common in any part of the gastro-intestinal tract from the esophagus to the rectum. The latter, however, usually causes few or no symptoms.

As a part of the congenital, or probably better the constitutional predisposition, it is my belief that spasm plays a big role. There is no doubt that it is associated with the inflammatory reaction in practically every case of diverticulitis. Spasm, however, is not an uncommon condition of the colon without diverticula being present and is dependent upon the sympathetic and extended vagus nervous system. It seems fair to assume, therefore, that such a constitutional predisposition is responsible for the spasm and that the spasm in turn is responsible for constipation, thus producing pressure that results in so-called "pulsion diverticula."

It seems important to stress the importance of x-ray study as the only positive method of diagnosing the presence of diverticula, although the clinical history may strongly suggest a diverticulitis. Of diagnostic value is the study of the colon ten or twenty hours after the barium meal by mouth as well as after the evacuation of the barium enema.

My own index shows a diagnosis of diverticulosis in fifty-two cases during the past eight years. Because of my inability to locate some of the original records and of patients not returning for the final examination the number has been reduced to twenty-two, which have been carefully studied and no possible doubt can attend the diagnosis. Of these twenty-two cases seventy-three per cent occurred in the fourth and fifth decades. Spasticity was present at one time or another in one hundred per cent of the cases. Fifty per cent were located in the sigmoid and the remainder throughout portions of the colon.

In a general way the symptoms of diverticulitis are not unlike those of appendicitis except for the location of the pain and it occurs usually at or near the site of the inflamed diverticulum. Tenderness, rigidity, fever, frequently nausea and leucocytosis are found just as we find them in appendicitis.

It is my belief that many of the symptoms are definitely associated with the spasm which occurs as a result of the inflammatory process. It is extremely chronic and in this series the average duration is over five years and not infrequently the history will date back for thirty years. Its most frequent occurrence at an advanced age is not in my opinion an argument against a constitutional predisposition since the symptoms may date back to a comparatively early age. Nor am I convinced that senility favors it more than it favors other conditions incident to senile changes. Failure to produce it in the young could be due to the fact that those selected for experiment were not constitutionally predisposed. It is my belief that an important factor is the constitution and inherent susceptibility of the patient which, whether congenital or acquired, predisposes certain individuals more than others to diverticula formation.

I am not of the opinion that diverticulosis is not frequently responsible for certain symptoms. Often patients complain of abdominal consciousness or a feeling of heaviness and discomfort after eating, and upon x-ray examination the presence of diverticula will be found which is associated with a moderate degree of spasticity but nothing to indicate diverticulitis.

**Joseph M. Frehling,** (in closing) My purpose in reading the paper on the subject of diverticulitis was for several reasons. The first reason is that to me diverticulitis is the most romantic condition in surgery, just as purpura is the most romantic condition in medicine.

I feel that three things in particular must be stressed, and they are the chief reasons and the only excuse for reading this paper. First of all, I think it is necessary that all of us be convinced of the fact that diverticulosis certainly is a common condition, as evidenced by the statement that in five per cent of all patients past middle age, multipile diverticula are found. If diverticulosis is so common, certainly diverticulitis must be more common than we have previously thought.

My other message to you is, don't call these cases inoperable carcinoma of the sigmoid. Although I am a novice and in spite of the fact that in all probability my experience in gross pathology has been considerably less than that of most of you, I still feel that if, as represented by the case that I reported to you, with the abdomen opened and with the tumor in my hand, I still thought that this patient had a carcinoma, then I feel that none of you is justified in saying that a case is one of inoperable carcinoma with the abdomen closed.

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**Resuscitation.**—Miller states that resuscitation is possibly effective thirty minutes after the heart has ceased to beat. It should be persisted in for another thirty minutes before one loses courage. Infants have been resuscitated and have recovered when there had been no voluntary respiratory movements for two and a half hours. As long as the circulation is maintained, there is no hope. When there is need for resuscitation, time must not be wasted in moving the patient or waiting for the arrival of an inhalator. Artifical respiration by one of the manual methods should be instituted as soon as possible and continued while the inhalator is on the way. When the inhalator arrives, it should be used even if respiration has been stablished by manual methods.

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# THE CANCER PATIENT*

D. Y. KEITH AND J. P. KEITH

Louisville.

In this brief discussion we shall not dwell on statistics or etiology. All are familiar with the many theories as well as the many attempts and false alarms that the cause of cancer has been discovered. Only one shall be mentioned that has appeared in the recent literature. Briefly it is as follows "that too much cholesterol leads to too much cell growth and this may lead to cancer. Normal cells may receive nourishment by osmosis through their membranes. The permeability is regulated by the amount of cholesterol in the system and especially in the adjacent tissue. In the embryo and the young growing individuals it is greater than in adults. The skin of the face as a whole contains three to four times as much as that of the skin of the abdomen, while the nose has seventy-five per cent more than the forehead. This distribution of cholesterol corresponds strikingly with the fact that ninety-eight per cent of all skin cancer occur on the face, and the nose is the most frequent seat."

Roffo has further proven, clinically and experimentally, that tumors and their surrounding tissues contain an abundance of cholesterol; it is also present in the precancerous conditions. His studies are not complete. He hopes to evolve a method for determining susceptibility of individuals to cancer and a means of diagnosing its presence. Exposure to the ultra-violet rays increases the amount of cholesterol present which accounts for the greater number of cancers of the skin on the exposed surfaces.

Chlorophyl in plants, which protects them from ultra-violet rays, is similar to the pigment in man, which explains why the colored race has so few skin cancers. By feeding white rats with a fat free diet, Roffo has been able to demonstrate their resistance to inoculation with malignant tumors, and further, where a malignant tumor was present. would disappear when the animal was fed on a fat free diet. It is a long step from a rat to a man in the study of cancer. The experiment is suggestive of a trial

I have my doubts if the cause and nature of cancer were discovered that any material change or advance in the treatment would occur. The cause of tuberculosis was discovered forty years ago, of syphilis twenty years ago, and to date no immunizing agent has been discovered for either.

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*Read at the meeting of the Muldraugh Hill Medical Society, December 8, 1932.

### DIAGNOSIS

As cancer patients come to us very few are difficult to diagnose. If a diagnosis can be made by inspection, no palpation is necessary; in fact, it may be harmful. No one can tell when a thrombus or embolus of cancer cells is squeezed into the lymphatic system, or even into the blood stream. Very few of us appreciate the invasion of the blood vessels by the epithelial or glandular cancers. Blood vessels crossing the tumor may carry an embolus to the bone, brain, liver, or lung where the blood vessels are smallest. This may account for the frequent metastases in these structures. By manipulation one may displace cancer cells into a blood vessel lumen unwittingly by the examining physician. Again, in animals, (mice) it has been demonstrated that by gentle massage of three to five minutes each day a double number of metastases can be caused outside the original growth.

In teaching hospitals multiple examinations of the tumor by students, followed by examinations by the junior and the senior internes, followed by the resident staff and then by the staff surgeon, and finally by the chief surgeon may account for the frequency of multiple metastases in the clinic patient. Recent statistics from a teaching hospital report twelve per cent of cases in cancer of the breast free of evidence of the disease at the ten year period, while in another clinic where few examinations were made thirteen per cent with axillary metastases and forty four per cent without metastasis were arrested at the ten year period. Again, if a diagnosis can be made by inspection, no further examination should be made.

Analysis of records are of little value unless one knows what has occurred in the interval between the recognition of the tumor and the time treatment is given. An attempt at the evaluation of the various methods of treatment is impossible unless this is known.

More can probably be learned by studying individual cases than by studying statistics of a large number of cases where no history and no record has been made of the number of examinations, or if massage or local treatment have been applied before treatment is begun.

### POINTS IN PROGNOSIS

Points to be considered are: (1) Age of patient; (2) type of tumor; (3) life history of this particular tumor in a patient of this age; (4) what is to be expected or obtained from treatment; (5) Arrest of growth; (6) Palliation; (7) Comfort while living; (8) mortality, morbidity.

In highly malignant tumors no surgery is indicated, while in chronic carcinoma, even in the presence of late metastases, radical procedure may be attempted. No surgeon will entertain operating upon an inflammatory cancer of the breast. This same respect of knowledge should prevail in the highly malignant group of carcinomata, lymph-sarcoma, Hodgkins' disease, and all the sarcomas except the fibro-sarcoma which frequently remains local throughout its life history.

### PATHOLOGIST

The pathologist is the keystone in the treatment of malignancy. By the history and the age of the patient, the type of cell, and an attempt to grade its degree of malignancy by Broder's classification, the character of treatment is to be outlined. Broder's cytological classification has helped to clarify the cancer question for rational therapy far more than any contribution in recent years. His classification is as follows:

Grade I 25% Embryonal Cells 92% Cures
Grade II 50% Embryonal Cells 62% Good Results
Grade III 75% Embryonal Cells 25% Good Results
Grade IV 100% Embryonal Cells 10% Good Results

On this basis one can easily determine why certain cancers should be treated by radiotherapy, others by surgery.

In cancer of the cervix uteri a larger percentage of undifferentiated cells in close proximity to the bladder, ureters, rectum and blood vessels so distributed in and around these structures makes surgery impossible, though it is radical and safe. Radium takes precedence over surgery by destroying by fibrosis these embryonal cells without injuring the normal cells. Surgery claims the field in the more chronic forms such as Scirrhous carcinoma of the breast where the tumor and adjacent lymph nodes can be removed. In the deep incurable cancers and their lymphatic metastases, sarcomas, lymphosarcomas and in their recurrence, radium and x-ray are the preferable agents by cutting off nutrition and encapsulation. In the surface cancers of low grade malignancy radium, endothermy or the knife are all successful, in our experience radium has given the best cosmetic results and fewer recurrences.

Again the pathologist skilled by study and experience gives a report which prognosticates the future and outlines the treatment in a given case. The physician is the engineer. He may be a physician, radiotherapist, or surgeon. A cancer cell does not recognize whether it is attacked by an internist, physician, radiotherapist or surgeon.

Many authors of experience think 72 per cent are curable in the early cases if the cancer cells have not extended beyond the primary focus while only 19 per cent are curable if extension is present. The only marked immediate improvement to be expected is by early diagnosis. Please instruct the cancer patient in terms he can understand so he will seek relief early and promptly.

### LYMPHATICS

The prime consideration in malignancy is the lymphatic vessels with their filter of lymph nodes. When a cancer cell has passed the last lymph node in the chain and enters the blood stream, it will then lodge in a small blood vessel which is usually in the bone, brain, lung or liver where the smallest vessels are present. This probably accounts for the frequent metastases in these structures where a cancer of the same character is produced. One cancer cell in the blood stream renders that patient a hopelessly incurable one. No one knows how soon this may occur or has been hastened by a vigorous or rough examination.

Lastly, we all recognize the best treatment is an early diagnosis, few or no examinations after a diagnosis has been made, followed by complete removal of the original cancer and of all the involved lymph nodes. If this can not be accomplished with safety and without mutilation, radiotherapy is the remaining remedy.

By every way possible we should as physicians (teachers) educate the people—our people we are sworn to protect—that when the causes and nature of cancer are discovered that the peers of the medical profession will be informed before the public, that the public scientific press will be informed before the lay press.

He who reveals the cause of cancer is a real scientist. His mission is to save lives, prevent disease and restore health. He had rather be a Pasteur in poverty than an Abrams in affluence. If this cause is pursued by all of us few patients, if any, will seek the services of quacks.

### CASE REPORTS

Case I. Mrs. McC. Age 35. Widow. Two children ages 19 and 15 years. Personal, family and menstrual history not of interest.

On August 7, 1925, the abdomen was opened by a Louisville surgeon. A pelvic tumor was encountered and considered inoperable. The abdomen was closed and patient sent home to die in a few months. Tissue for biopsy was reported as a "Malignant Adenoma of the Ovary." Following this operation she had very little discomfort for several months, though the tumor increased in size.

Fifteen months later she was seized with severe abdominal pain requiring hypodermics for relief. The pain was severe for three days and remained constant as a severe low back pain.

Examination showed a well developed, well nourished patient. In the pelvis there were multiple nodular masses firmly fixed. A definite left ovarian tumor was present the size of grape fruit. Surgical consultation was obtained and the tumor was considered inoperable. Radiation was advised.

High voltage x-ray was given to the pelvis through anterior and posterior portals and 2,590 mg, hr. of Radium was applied intrauterine. Prompt relief from pain was experienced. Two months later x-ray treatments to pelvis were repeated.

Pelvic examination two months after the first series showed definite reduction in the size of the tumor. It certainly was more movable. X-ray treatments were repeated in July, 1927.

Examination on August 7, 1927, showed a cystic tumor was present extending above the umbilicus. The abdomen was opened under local anesthesia by Dr. E. S. Allen with the idea of draining the cyst and if the tumor was operable to remove it under gas-oxygen anesthesia. This was successfully done. The convalescence was uneventful and a surprise to every one. Biopsy report by Dr. J. D. Allen was "Papillary Pseudo-Mucinous Cyst-Adenoma" of the ovary.

Following this operation she was free of symptoms for three years. Then in April, 1930 she developed a large pelvic abscess which was drained by the vaginal route. Pre-operative x-rays gave no relief. More than 1200 cc. of thick muco-purulent fluid were removed. Three definite recurrent nodules could be palpated in the pelvis. She was advised to return in a few weeks for their removal. She did not return as she was free of pain for fourteen months.

June 10, 1931 the abdomen was again opened under local anesthesia to drain a large recurrent cyst for relief of pressure pain. Extensive malignant transplants were present in the omentum, in the intestinal wall, in the parietal peritoneum, and in the cervical stump. Radium applications gave relief of pain for a few months.

Patient succumbed five and one-half years after we saw her. More than four years of this time she was free of symptoms. Her household duties were cared for and she worked as a saleslady and enjoyed good health most of this time.

The life of this tumor was more than seven years. She was able to see her daughters complete their education; one has married and the other is employed as a bank bookkeeper. Surely the reults were worth the effort.

Case II. Mrs. H. Age 47. Diagnosis: Scirrhous Carcinoma of Both Breasts.

Father died of carcinoma of throat. Mother died of carcinoma of intestines. One sister died of carcinoma of the breast. Two brothers and six sisters living, in good health. Three brothers died in infancy.

In May, 1928 she noticed a lump in the left breast, followed by several other lumps, followed by ulceration. Four months later a lump appeared in the right breast and one month later a metastatic node appeared in the left axilla.

Examination October 25, 1928, showed the left mammary gland involved in nodular masses. The skin over the left mammary gland was ulcerated. One large metastatic node was present in the left axilla. The right breast was involved in a nodular tumor; one small metastatic lymph node was present in the right axilla.

Simple amputation of both breasts was performed by Dr. E. S. Allen. On the day of operation 50 mg. radium element was placed in the left axilla in the lymph node bed. Three weeks later both axillae were x-rayed through anterior and posterior portals and repeated two months later.

Patient returned three months later with three recurrent nodules in the scar. These disappeared by treatment with radium pack. Two metastatic nodes were present in the right axilla and these disappeared after radium pack treatment.

Five months after operation patient returned almost exsanguinated from a profuse hemorrhage from a small uterine fibroid that was present before operation. Red blood cell count was 2.240,000. Hemoglobin 30% (Sahli). Without anesthesia 1700 mg. hr. radium element was given intrauterine. The fibroid tumor, which was the size of a large grapefruit, soon disappeared (three months) giving no further symptoms. A permanent artificial menopause occurred.

Patient remained symptom-free for three years when metastases in the lymph nodes of each side of the neck and floor of the mouth appeared and very promptly disappeared under x-ray therapy. One month later a large metastatic mass appeared in the abdomen and promptly receded under x-ray therapy. Seven months later metastatic nodes appeared on both groins, and quickly receded under x-ray therapy.

She succumbed two months later from metastasis in the liver and the lungs. The life of this tumor was four years, and we are sure little or no pain was ever experienced. Had no treatment been given she would have succumbed in a few months. The pain, distress and care of a foul ulceration of the breasts was also prevented and her time was certainly extended.

This patient received very definite relief from treatment by surgery, radium and x-ray. Not one of the agents would have been successful alone.

Case III. Mr. S. Age 34. First seen in December 1928. At first examination the right chest was filled with fluid. After frequent drainage a massive tumor could be seen in the mediastinum. The neck, face and forehead were swollen and cyanotic. Basal metabolic rate by Dr. J. D. Allen was -2.

X-Ray and Clinical Diagnosis: Mediastinal tumor probably originating in the Thymus Gland.

The tumor proved to be sensitive to radiation and February 2, 1929 series of x-ray therapy was begun. Rapid improvement was noted. The chest was filled with fluid again and on March 20, 1929, was removed, and continued to refill for about three months. The right lung was partially collapsed after the first aspiration of fluid and did not completely expand for about four months.

Another series of x-ray therapy was given in May 1929. Patient remained free of symptoms for one year. He returned on January 28, 1930 with a metastasis in the parietal bones with a mass on the top of the head several centimeters in diameter. X-ray film showed moderate destruction of the parietal bones. He also complained of "rheumatism" in the lower extremities and x-ray examination revealed metastasis in the left femur that was quite extensive. The same condition was present in the right femur, though not so far advanced. The lesions in the parietal region and in each femur disappeared under x-ray therapy.

Six months later he returned with pain in the back and pelvis, with paralysis of the bladder and rectum. He was unable to walk without assistance. X-ray examination showed the bodies of the fourth and fifth lumbars were partially destroyed. Within three months time after x-ray therapy these bodies showed marked evidence of recovery and today he has had no other metastasis in any other bones.

Two years and four months after initial treatment of the tumor of the mediastinum he returned with a large mass in the epigastrium. This mass quickly disappeared under x-ray treatment. He gave a history of three or four unconscious attacks, though from the family's description they were not epileptic in character.

Three months later he returned with a tumor in the left side of the pelvis the size of a large lemon. It was not painful and the only symptom was obstipation.

February 19, 1932, patient complained of pain in the lower part of the left chest. Physical and x-ray examinations were negative. Fifty per cent of an erythema dose of x-ray was given over this area and he was relieved of pain.

He returned on May 14, 1932, with a mass in the right lower abdomen just above the crest of the ilium. This disappeared after x-ray treatment. He has returned on two or three occasions since complaining of pain in the right side of the chest, but x-ray and physical examinations were negative and no treatment was given.

In August, 1932, he had a recurrence in the right parietal region and this receded rapidly under x-ray therapy.

On December 1st, 1932, he returned with a tumor in the left lateral wall of the abdomen just above the crest of the ilium, which disappeared rapidily after x-ray treatment. This was exactly four years after treatment was begun. Today he weighs 170 pounds, says he feels quite well, is able to do light work.

No microscopic diagnosis has been made as no superficial tumors have appeared so that one might obtain a specimen for biopsy. We have labelled this tumor as originating in the thymus gland. We trust we will be able to give a final report later.

Mediastinal tumors are usually some type of lympho-sarcoma, lympho-sarcoma of the neck or axilla, which are frequent locations, usually disappear rapidly under x-ray treatment, though none have been so sensitive as Case III.

The above cases indicate quite definitely the information one can obtain from studying individual cases of malignancy. At the primary examinations of these patients, no cures were to be expected. Palliation was attempted and we are quite sure definite results so far as relief of pain and discomfort, even prolongation of life has occurred in all three cases.

**Coryza, Pharyngitis and Sinusitus in Man.**—According to Webster and Clow, persons free of pneumococci, Hemophilus influenzae and Streptococcus hemolyticus are in general free of coryza, sore throat, and influenzial and sinus attacks; persons who are occasional or periodic carriers of these organisms may be negative on tests over long healthy periods but generally become positive during or following attacks and subsequently become negative again; finally, persons who are chronic carriers show during these illness increasing numbers of organisms in the throat an dextension of the organisms to the nose. The authors make an addition to the knowledge of the mode of spread of these organisms. A focus of growth and dissemination was determined in the nasal passages and throat of individuals with chronic disease of the disease of the upper respiratory tract.

## RING WORM OF THE FEET*

Wm. J. Young, M. D.

Louisville.

Ring worm of the feet also known as epidermaphytosis, and, more universally known as athlete's foot, is the most prevalent skin disease in the Southern States today and, probably, the most prevailing one in the United States of America.

The infection usually takes place under, on or between the toes and may spread to other portions of the foot. It is carried by the fingers to the groin, axilla or any part of the body, especially, where the folds of the skin form a warm, moist culture bed for its incubation. The fingers are less often affected than the toes, but as a carrier, rank high. The most favorable locations to contract this skin disease is in the lockers and the baths of golf clubs, gymnasiums, swimming pools or any place where a large number of individuals change clothes and walk about in bare feet. The infectiousness of ring worm of the feet is variable. A patient may have one foot infected for years without the disease invading the other foot or other parts of the body. The same is true of toe nails on the same foot; wife or husband may have the infection without infecting the one free from the disease. In fact, every one of the favorite sites of infection may be invaded singly, though, the original infection is usually the feet.

This disease is more prevalent in warm weather and apt to remain quiescent during the cold weather. The subjective symptoms vary from a mild discomfort to symptoms which may incapacitate the patient for some months. From an objective standpoint, there may be only a slight scale in mild cases which occasions the patient no discomfort whatever. Other more advanced cases show vesicular blebs, fissures, moist sores and infiltrated thickened areas between the toes accompanied anywhere from a mild annoyance to an intense itching. The usual history of a chronic epidermaphytosis is that the disease shows activity from time to time, the interludes giving the patient practically no annoyance and the exacerbations much discomfort. These exacerbations have become a point of much speculation on the part of the skin specialist. The fact of their activity being more prevalent in warm months is accepted, the thought is advanced, knowing the organism grows with best facility in a sugar acid medium, that the concentrated debris from the evaporation of perspiration form a more receptive culture media and may explain its prevalence in warm climates. The blood sugar content of infected patients is found higher in sugar content and it has been established high or low blood sugar has a corresponding high or low percentage in the skin. Patients improve much more quickly who refrain from eating starches and sweets and cut down on alcohol, washing their feet twice a day.

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*Read before the Medico-Chirurgical Society, Louisville.

The disease appears as a vesicular eruption, the vesicle being tense, deep seated. They may coalese and become large bullea. Between the toes, we usually find a whitish thickened callus formation in chronic cases.

The treatment of this disease consists of prophylactic measures as well as curative ones. Preventive measures have been established in many clubs, but unfortunately very little attention is paid by those most interested. Slippers of fibre, very inexpensive, can be used and then thrown away. Foot baths of a three per cent solution of hyposulphite of soda are means to inhibit the action and prevent favorable implantation of the disease. A powder consisting of salol, chloral hydrate, of each two grams, talcum, quantity sufficient to make one hundred grams, used as a dusting powder inhibits the action of the fungus, has been devised by Dr. Herman Goodman, New York City, after having thoroughly tested and found effective in above percentage. The prophylaxis deserves our special consideration as do most preventive measures. Dr. Samuel Ayres, Jr., and his associates, of Los Angeles, California, have made extensive tests with formaldehyde candles proving it is quite easy and feasible to destroy the fungus by fumigating lockers and contents, dressing rooms, bath mats, towels, clothing, shoes, etc., inexpensively, as often as desired with an assurance of success. These precautions are not taken very seriously by those officially active or the victims of the congested infected areas above mentioned. Consequently, as long as club members of various. athletic associations and clubs continue to take shower baths and walk barefooted where a fellow-member has thrown debris of his toepicking, general practitioners and skin specialists will be the recipients of many cases of epidermaphytosis.

Sometime, it is quite difficult to demonstrate the spores and mycelia of ring worm with microscopic examination. There is a commerical product called Trichophyton, one-tenth of a cc of which, if injected into the epidermis in dilution of a one to fifty to one to ten gives the characteristic reaction considered diagnostic. This Trichophyton is used as a curative agent in dilution from one to fifty and increasing doses to full strength twice a week, the strength of the dilution being governed by the reaction of the previous dose. The dilution is given subcutaneously. The diagnostic skin reaction has been in excess of our laboratory findings and undoubtedly has merit. As a therapeutic agent, its value has not endeared itself to me, although, Thorne, Myers and Traub, of New York City, and others report a large percentage of therapeutic results with its use.

The treatment of ring worm of the feet, its exacerbations and sequelea, is varied, each case presenting a separate problem. There are, however, general instructions which are well for the patient to observe. Diet has very little direct effect on the disease itself, but on the theory of a deposit of an acid sugar medium deposited in the moist folds of the skin through the evaporation of sweat, it is judged well to have the patient refrain from eating an excess of starch and sweets and even cutting them down materially. Still harping on the culture bed of the acid sugar medium theory, it is well to have the patient wash with soap and water night and morning the infected areas, whether they be toes, feet, groin or axilla or elsewhere. It is seldom soap and water irritate this disease and it may be well adopted as a routine measure. The employment of the prophylactic powder of Dr. Herman Goodman mentioned above is a wise precaution to inhibit the growth of the fungus as well as limit the extension of the disease and it may be applied to the areas likely to become later seats of the ring worm infection. As in ring worm of the toes, it is well to use this powder in the groin and axilla as a preventive measure. Irrespective of whether you employ salves, lotions or powder to relieve and cure epidermaphytosis, it is well to continue their use for two or three weeks after the disease has seemingly disappeared.

Ultra-violet ray and x-ray irradiation have a curative action on the infection, the action of the x-ray being more certain and constant. The action of the x-ray is an indirect one as the ray has no lethal action or direct influence on the fungus, but is thought to produce a change in the invaded area as to render the future growth or invasion unfavorable. X-ray irradiation is given in weekly fractional doses which produce no discernable effect or change on normal skin.

For local application many and various lotions and salves are employed: The salve most usually accepted for treatment is Whitefield's Ointment or some modification. Whitefield's Ointment is salicylic acid 6%, benzoic acid 12% in white vaseline or any base desired by the doctor. Whitefield's Ointment with salol and chloral hydrate 2% may be combined. Another popular and often effective measure is painting with a five per cent chrysarobin in chloroform, bearing in mind, the possible resulting irritating reaction of the chrysarobin. Of the lotions, potassium permanganate one to three thousand to one to five hundred; Burrow's Solution one to three parts; mercurochrome 10%; tincture of metaphan have their place in the eradication of the disease.

When ring worm has been carried to the groin, washing with soap and water is important before the therapeutic application which may consist of tincture of iodine, Whitefield's Ointment, Chrysarobin 5% in chloroform. If the anus and cleft between the buttocks are invaded, x-ray is most effective, in fact, in my hands, where an even distribution of the ray is applicable, x-ray is superior to any other agent. It is in places, as in between the toes, one is not able to distribute it evenly; it does not take first place as a therapeutic agent. The secondary infections subsequently to ring worm invasion are most trying, and at times become so painful as to prevent the patient from indulging in his occupation or even dressing himself if it occurs on the hands. This secondary infection consists of moist elevated sponge-like sores, very painful to touch or pressure and in this complication, I have found Burrow's Solution one to three as a continuous wet dressing most effective.

Practically every large pharmacy house in the country has a cure for epidermaphytosis and they are all intelligent combinations of drugs beneficial to this disease beautifully compounded. Fortunately for the doctors, these drug houses are unable to exert individual care and meet special complications or there would be little need for the doctor except to diagnose the disease and then send the patient to his druggist, if he has not already his favorite remedy. While germane to the subject, there is perhaps no better example to show the trend of pharmaceutical houses in promoting their specialties and registered combinations of drugs for specific diseases than the various remedies promoted for skin. This trend has resulted in causing the average doctor to take a short lazy course and prescribe what the pharmaceutical house suggests with the result of very little individuality in prescribing medicine, the drug clerk has become less proficient, the patient pays more for his prescription and the druggist's profit is materially reduced. The undergraduate seems to know more about these combinations of drugs (registered under a name) and their clinical indications than he does about drugs in the pharmacopeia and their uses.

### Conclusions

1. Ring worm of the feet is the most prevalent skin disease in the South.

2. Higher content of sugar in perspiration seems to predispose exacerbations.

3. The preventive measures are most important and little regarded.

### DISCUSSION

**Winston Rutledge:** Ring worm of the hands, feet and other portions of the body is perhaps the most interesting, and certainly the most prevalent, condition with which we, as dermatologists, have to deal. Since the war it has advanced from eight or tenth place in the scale of frequency to second, or possibly even first place.

Regarding the use of trycophytin as a diagnostic measure, Goodwin, Williams and others have shown that, at first, many persons tested with this substance gave positive local as well as general reactions. Subsequently, on closer examination of such cases, the trycophytin was found to have been secondarily infected and upon elimination of this bacterial contamination, there was a decided lessening of the percentage of positive reactions.

While on a visit to New York in September, I talked with Dr. Goodman, at the Skin and Cancer Hospital, and he told me they were using trycophytin in the treatment of a good many cases and were getting good results from it, but that it was not greatly superior to local treatment, and that the reaction at the site of injection was sometimes very severe.

To me, one of the most interesting features of epidermaphytosis is the allergic reaction which we so frequently see on the bodies and hands of these patients. For a while it was believed that every one who presented vesicular eruptions on the feet and hands had epidermaphytosis, but subsequent work, particularly by Werner Jadassohn of Germany, and Peck, who worked with him, showed that in practically every instance the tinea could be demonstrated in lesions of the feet, but that rarely could it be demonstrated in the vesicular lesions on the hands and body, and reasoning along lines analagous to those of Joseph Jadassohn who, in 1911, first demonstrated the allergic reaction so often seen on the bodies of children secondary to the Kerion type of ring worm of the scalp. They advanced the theory that, in epidermaphytosis, practically every instance of vesicular eruptions on the hands secondary to infection of the feet, was an allergic one. To prove this they have, by the injection of trycophytin, been able to produce lesions on the hands of patients who had infections of the feet alone, and when the lesions on the feet cleared up, those on the hands cleared up shortly afterwards without local treatment.

I think it was Strickler and Widener, of Philadelphia, who obtained some volunteers and inoculated them with a culture of tricophytin and produced an infection of the feet. These individuals had previously had no tinea infection, but shortly after being inoculated they developed vesicular eruptions on the hands. In these inoculated individuals, the condition did not last long and as soon as the infection in the feet cleared up, the eruptions on the hands disappeared also.

The question whether tinea can be transported through the blood stream is a very interesting one. In experimental work on tinea infections in guinea pigs at the Skin and Cancer Hospital in Philadelphia, it was demonstrated that there are three phases of blood stream infection. First, a positive phase, occurring two or three hours after inoculation in practically every instance. Then a negative phase lasting three to nine days, during which there were no positive blood cultures obtained. Then a second positive phase eleven days afterwards, in which all the guinea pigs showed positive blood cultures. There has been no satisfactory analogy to this phenomenon demonstrated in cases of human infections because of the small percentage of cases in which blood cultures have been carefully studied, but it opens up a field of interesting speculations along this line.

The question of sugar as a favorable agent for the growth of the ring worm organism in vivo is a very important one. We know that moisture and heat tend to promote the growth of the ring worm, but whether increased concentration of sugar in the blood and skin materially affects the development of these organisms is a problem which will require additional investigation before a final answer is obtained.

I enjoyed Dr. Young's paper very much and I wish to thank this Society for the privilege of being allowed to discuss it.

**J. R. Peabody:** One phase of this subject in which I have been very greatly interested is recurrent erysipelas in ring worm of the feet. Hayes reported to the Southern Medical Association a number of cases of this kind, one of his patients having had erysipelas in the left leg ten times, and recently he has been working along this line from the angle of its connection with ring worm of the feet. He has shown that these cases of recurrent erysipelas practically always have ring worm of the feet, and that the recurrence of the erysipelas, even though immunity be established by the administration of streptococcic serum, does not cease until the ring worm has been treated and cured.

**Clyde McNeill:** As Dr. Young has pointed out, we know that there is some relationship between the carbohydrate content of the skin and the instance of ring worm of the feet. The amount of sugar in the skin parallels the blood sugar, although it is somewhat lower; for example, with a blood sugar of 300-250 the skin sugar is 80-50. In the same individual, as the blood sugar goes up or down, the skin sugar also goes up or down. The non-fermentible substances in the skin are the same as in the blood; for instance, where we have a blood sugar of 80 we know that the actual sugar is about 55 and other substances 25, and the same is true in the skin.

Determination of the amount of skin sugar is made by taking little pieces of skin during an abdominal operation, grinding them up and extracting them in a manner similar to making a blood culture.

**Harry S. Frazier:** I have often wondered what is the obscure etiological factor or contributing causes in ring worm of the feet, whether it is a particular type of skin, a particular type of individual, or what not. It has seemed to me that I have observed a certain similarity of type in individuals presenting this condition, particularly those who have bad infections, in whom the ingestion of sugar acts as an exacerbating influence. Also that young adults, 18 to 21 years of age, present the worst infections, particularly the secondary manifestations. I would like to ask Dr. Young if this agrees with his observations.

**Emmet F. Horine:** Dr. Young did not mention the mercurials, such as ammoniated mercury and yellow oxylate of mercury, in connection with the treatment of this condition, and I would like to ask him whether or not such remedies are helpful in the treatment of ring worm of the feet.

**John W. Price, Jr.:** I believe I was one of the earliest sufferers from this condition in the city, and I consulted nearly every one. I finally effected a cure by frequent washings with soap and water and rubbing alcohol. I also came to the conclusion that shoes had something to do with it, so I threw away all I had and bought new ones. My diagnosis of my condition was herpes zoster, induced by fatigue plus poor metabolism. I am convinced now that I had athlete's foot.

During the past summer I saw three or four cases of ring worm of the feet apparently cured within a few days by the application of a combination of mecurochrome and sulphur ointment. I would like to ask Dr. Young if he has ever used sulphur and what has been his experience with it.

**C. W. Dowden:** Among the various remedies for this condition that have been mentioned, I was a little surprised not to hear some reference to one that I had always regarded as being more or less of a specific; namely, thymol. In my own experience I have always found a ten per cent solution of thymol in alcohol to be practically a specific. Its application burns rather severely but it serves the purpose. I would like to ask Dr. Young if thymol is still being used in this condition.

**J. Garland Sherrill:** While in Vienna a number of years ago I attended a large skin clinic, and upon looking around I was forced to make the inquiry—"Why don't you make these people wash?" and the reply was—"If we do, we won't have any skin clinic."

**W. J. Young,** (in closing): I wish to thank the members of the Society for their liberal discussion of the paper.

Various therapeutic measures have been suggested for ring worm of the feet. The best remedy is the one that produces the best results. Dr. Moore mentioned tincture of metaphan as having been successful in a period of three days. I have seen it do the same thing in some cases and in others it did not work so well. As to the sugar theory, while it may not be proven biologically, from a clinical standpoint I feel sure that I am right because, certainly, the liberal use of soap and water, keeping the feet clean and free from debris, is very helpful. It is a good idea, as some one suggested in the discussion, to change the socks frequently; the sterilization of clothing, or any other article which comes in contact with the infected area, is a valuable preventive measure. A year or more ago Dr. Ayres, of Los Angeles, conducted a series of experiments along this line, by placing various articles, such as floor mats, shoes, clothing, etc., in a room ten by ten feet square with a No. 2 formaldehyde candle for a period of four hours, following which he was unable to demonstrate the presence of any living organisms.

Mercurial and sulphur preparations may be and are frequently used with good effect in the treatment of this condition, and the only reason they were not mentioned in the paper was that we felt that these measures which were suggested were of more practical value. As a matter of fact, in many instances, the disease will disappear without any treatment except hygienic measures, using plenty of soap and water and changing the socks frequently. One phase of the subject that has always interested me is the fact that this condition may remain quiescent over a comparatively long period of time and then suddenly flare up into an acute infection.

Thymol has also been used successfully in the treatment of ring worm of the feet. Another remedy which has not been mentioned in the discussion is tincture of iodin, which is most efficacious in some cases.

Dr. Sherrill's remark, dermatologically, is most pertinent but one well to bear in mind even if surgery is his forte. Certainly in this particular skin disease soap and water are our best friends.

Dr. Frazier's questions stir up quite a speculation and to answer his questions is rather difficult. I believe the sugar content of the skin play an important part in the exacerbations and I am glad he has found sugar to be a factor. My observations agree as to the age but these severe exacerbations may occur at any age—two years to sixty-five.

## FORUM

### TRAINING SCHOOLS IN SMALL HOSPITALS

Lexington, Ky.
February, 7, 1933

Mrs. Emma Hunt Krazeise,
State Board of Nurses Examiners,
415 Martin Brown Building,
Louisville, Kentucky.

Dear Madam:

I am writing you again in behalf of the Harrison Hospital of Cynthiana and to call your attention to the hardship which will be imposed upon the people of that section and upon the Medical profession if this hospital is crippled, as it is bound to be, by the closing of its training school. It is their desire that you approve their taking in two student nurses for training. I realize fully that there is a surplus of registered nurses and that something should be done to limit the constant annual flow from the hospital training schools into your profession. I submit however, that you are straining at a gnat and swallowing a camel in turning out large classes from the hospitals in the larger cities of the state and endeavoring to cut off the training schools in small communities, schools which turn out perhaps one or two nurses per year.

It should be remembered also that these schools prepare nurses who are willing to stay in the smaller communities and to nurse in the rural districts, where they have had their training, where they would be nursing for physicians under whom they had received this training, and where nurses trained in the cities consider it a hardship to work. It is impossible for these hospitals to survive in case they have to employ registered nurses for routine nursing. Such a burdensome and unjust regulation by a governmental agency, such as your board is, seems to me an extraordinary action, particularly in a time of such economic distress.

Unless these small hospitals are permitted to continue their training schools under your sanction, it seems to me that financial considerations will force them to use nurses, who will not hope for registry and will use the training they receive, to nurse the sick professionally in competition with the registered nurse, to the latter's great disadvantage.

As you no doubt know this matter has been under discussion in the House of Delegates of the Kentucky Medical Association. I happen to be a member of the committee appointed to consider the matter but, needless to say, I am expressing my personal views in writing this letter. I am, however, sending a copy of it to the other members of the committee and to Dr. A. T. McCormack, Secretary of the State Board of Health and of the Kentucky Medical Association.

Very truly yours,
(Signed) John W. Scott.

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NEXT MEETING MURRAY

## COUNTY SOCIETY REPORTS

**Harrison:** The Harrison County Medical Society held the annual meeting and dinner at the Harrison Hotel December 5, 1932.

Members and visitors present: Drs. McIlvain, McDowell, Wyles, Wells, N. W. Moore, Brumback, Moody, W. B. Moore, Rees, Martin, Midden, Chamberlain, Todd, Carr and Blount.

Drs. A. T. McCormack and Blackerby, Louisville; Shaw and Caldwell of Newport; Massie, Ray, John W. Scott, Sam Marks, Barrett and Harvey of Lexington.

Drs. Daugherty, Orr, Ussery, Rankin, Hopkins, Kinney, Hart and Blemke of Paris; McMurtry of Falmouth and Smiser of Carlisle.

The meeting was called to order by the president, Mr. McIlvain.

The nominating committee recommended the following for officers for 1933: For president, J. M. Rees; Vice-President, G. H. Ross; Secretary-Treasurer, W. B. Moore; Delegate to the State meeting, N. W. Moore; Alternate, J. P. Wyles. Censor for 1933, E. S. McIlvain.

On motion, the report was accepted and the Secretary instructed to cast one ballot for the President, Vice-President, Alternate and Censor, and the President was instructed to cast one vote for the Secretary-Treasurer and Delegate. The motion was carried unanimously.

Dr. McCormack talked on "The Report of the Committee on the Cost of Medical Care." Dr. McMurtry read a paper on "Burns." Talks along the line of Dr. McCormack's remarks were made by Drs. Ussery, Daugherty, Scott, Marks and Orr.

Dr. Wells offered the following resolution: Moved and seconded that the Harrison County Medical Society go on record as endorsing Dr. A. T. McCormack to represent our interest in any movement that may be taken by the Committee on the Cost of Medical Care of the American People.

W. B. MOORE, Secretary.

**Jefferson:** The following is the program for the March meetings of the Jefferson County Medical Society:

**March 6th—Case Report**

Cryptorchism with Incidental Carcinoma, J. Andrew Bowen, M. D.

**Symposium on Fractures**

Fractures of the Lower End of the Humerus, Diagnosis and Early Treatment, I. A. Arnold, M. D.

Complications of Fractures of the Lower End of the Humerus, Cause and Treatment, W. Barnett Owen, M. D.

Volkmann's Contracture, Causes and Treatment, Harry Goldberg, M. D.

Discussion to be opened by C. G. Forsee, M. D.

**March 20th—Address**

Maternal Mortality, J. R. McCord, M. D., Professor of Obstetrics, Emory University, Atlanta, Georgia.

(The above address is sponsored by the Louisville Obstetrical and Gynecological Society.)

I. T. FUGATE, President.
CHARLES M. EDELEN, Secretary.

**Henderson:** On the evening of December, 12, 1932, the Henderson County Medical Society enjoyed a banquet at the Hotel Soaper.

The following men were elected for the year 1933:

President, Francis Clark.
Vice-President, E. N. Powell.
Secretary-Treasurer, Walter O'Nan.
Delegate, Emerson Smith.
Alternate, George White.

WALTER L. O'NAN, Secretary.

**Laurel:** The Laurel County Medical Society met December 21, 1932 in the office of the Secretary and elected the following officers for the following year: President, J. W. Crook, London; Vice-President, Wm. Johnson, London; Secretary, Oscar D. Brock, London; Delegate, G. S. Brock, London; Alternate, H. V. Pennington, London.

OSCAR D. BROCK, Secretary.

**Perry:** The first regular monthly meeting of the new year was held at the office of Dr. J. P. Boggs, Hazard, January 9, 1933. Dr. Taylor Hurst presided.

A very interesting and instructive paper on Tuberculosis was read by Dr. D. D. Carr and thoroughly discussed by members of the Society.

It has been a custom of the Perry County Medical Society for years to formulate a program for each meeting during the coming year. Such a program was presented by the Program Committee and adopted at this meeting.

The next meeting will be held at the Perry County Health Office, February 13, 1933.

R. L. Collins, Secretary.

**Scott:** A meeting of the Scott County Medical Society was held in the waiting room of the Scott Couny Health Department on Thursday evening, December 1st, at 7:30 P. M.

The meeting was called to order by President H. H. Roberts, with the following members present, Drs. H. H. Roberts, L. L. Cull, L. F. Heath, S. S. Amerson, E. A. Anderson, D. B. Knox, H. V. Johnson, P. H. Crutchfield and F. W. Caudill.

The Society proceeded immediatelly into the annual election of officers for the year 1933 and the following men were elected to serve. Dr. D. B. Knox was elected President; Dr. L. L. Cull, was elected Vice-President; Dr. F. W. Caudill was elected Secretary and Treasurer; Dr. H. V. Johnson was elected to the Board of Censors for a three year term. Dr. H. H. Roberts was elected as the Delegate to the State Convention, with Dr. L. F. Heath being elected as Alternate.

After the election of officers a report was made by Dr. F. W. Caudill, Director of the Scott County Health Department on the activities of the Health Department during the past six months.

Six of the men present paid their state and county dues.

Meetings of the Society will be held on the first Thursday in each month as has been the custom heretofore.

F. W. CAUDILL, Secretary.

**Jefferson:** The 674th Stated Meeting of the Jefferson County Medical Society was held in the City Hospital on Monday evening, January 9th, 1932, with approximately 115 members present.

The meeting was calld to order at 8:00 P. M. by the President, Dr. I. T. Fugate.

### Approval of Minutes

Minutes of meeting December 19th were read by the Secretary and without objection or correction were approved as read.

### Community Chest

By unanimous consent, Mr. James J. Donohue was extended the privilege of the floor and in a short address he outlined the needs of the Community Chest for the coming year and solicited the support of the Society and its individual members in the forthcoming campaign for funds.

### Communications

A communication from the Kansas State Board of Health, concerning Dr. Edmond D. Wells, was read by the Secretary and, upon motion duly seconded and carried, same was ordered referred to the Judicial Council.

### Report of Committee

Dr. A. R. Bizot, Chairman of the committee appointed to circulate petitions concerning license fees and telephone rates, reported progress. It was suggested by Dr. Oscar E. Bloch that the committee include in these petitions a request to the Mayor that, in line with the courtesy usually extended to other individuals and industries, of freedom from taxes and licenses for a period of five years after locating in Louisville, the same courtesy be extended to physicians locating here.

### Election of New Member

The application of Dr. Auryne E. Bell for membership in the Society was presented by the Secretary, duly approved by the Judicial Council, and upon motion duly seconded and carried, Dr. Bell was declared elected to membership.

### Amendment to By-Laws—Committee on Medical Economics

Dr. D. Y. Keith submitted the following:

"The following addition to the By-Laws is offered for consideration by the Society and its adoption moved:

The intent and scope of this addition is to incude such phases of medical economics as health, accident and hospital insurance, workmen's compensation laws, group practice, panel system, contract and industrial practice, public health activities, public and institutional dispensaries and clinics, care of the indigent sick, nurses' training, distribution of medical facilities and physicians' fees, business methods, cost of medical care, and allied problems.

### Article XII

A Committee of Medical Economics is established. This Committee shall consist of three members appointed by the President. The general purpose to be served by the creation of this Committee are to collect data pertaining to the economics of the practice of medicine for the use and information of the members of the Society.

It was ruled by the President that, in accordance with the By-Laws, the proposed amendment would be incorporated in the February Program as notice to members, and be voted upon at the first regular meeting following the ten days notice required by the By-Laws.

Dr. J. W. Riely, President of the local Dental Society, extended to the members of the Society a invitation to hear an address by Dr. Nathan Sinai, Professor of Public Health of the University of Michigan, on the subject "The Way to Health Insurance," to be given at a meeting of the Dental Society at the Kentucky Hotel on January 18th. Moved by Dr. Sherrill that the Society thank Dr. Riely for his invitation and assure him of its co-operation and support; and that the Secretary send notice of the meeting to the members of the Society. Seconded and carried.

There being no further business before the Society, the scientific program was proceeded with as follows:

### Report of Cases

Blastomycosis of the Face and Arm; Report of Case, by Dr. Winston U. Rutledge.

Discussion by Drs. C. B. Willmott, D. Y. Keith, and by Dr. Rutledge in closing.

Ruptured Appendix, with Complications; Report of Case, by Dr. Charles M. Edelen.

Discussion by R. L. McCormack, Simrall Anderson, and by Dr. Edelen in closing.

### Essay

Removal of the Prostate Through the Urethra; illustrated by Motion Pictures; by Dr. Owsley Grant.

Discussion by Drs. Henry J. Farbach, J. Martin, F. P. Strickler and, in closing by Dr. Grant.

Secretary.

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**Grant:** The Grant County Medical Society met at the office of the Health Department Wednesday, December 21, 1932 with the following members present: Drs. J. J. Marshall, J. L. Price, J. W. Abernathy, N. H. Ellis, C. D. O'Hara, J. D. George, C. M. Eckler and C. A. Eckler

Visitors present were Ed Northcutt, C. A. Morris, and Claude Smih, of Covington. The minutes of last meeting were read and approved, and as this was the time for the election of officers this was called for but a motion was made and carried that this be laid over until next meeting, as we had quite an interesting program prepared by Ed Northcutt, one of our visiting brothers.

Communications were read and one in regard to the "Woman's Auxiliary" was taken up by the society, and motion made and carried that Mrs. B. K. Menefee, chairman of this organization be communicated with, by our secretary in in order that a Woman's Auxiliary be organized in this county.

We now entered into the program for the evening, "Fractures of the Extremities and their Treatment." This was most interesting. Dr. Northcutt presented the subject with x-ray photographs of almost all fractures of the extremities and ones that came under his immediate supervision. Dr. Northcutt showed that he was master of his subject. He showed how he treated these with local anesthesia, using novocaine down near the seat of the fracture, and likes it much better than general anesthesia in these particular cases. Cautions against too much manipulation and urges x-ray before manipulation if possible. Dr. Northcutt's talk was hugely enjoyed by all present.

Dr. Smith also gave us a brief but interesting talk, on "Common Diseases of the Throat and Ear," showing how to open an abscess in the throat, bringing out the point of not making too too deep an incision but work your way in with hemostat.

Dr. Morris also gave some interesting facts and points of interest in his practice as a general practitioner. There was a motion made and carried that we extend these gentlemen a vote of thanks for their visit with us at this time and extend them a hearty welcome to visit us at any future meeting.

Subject for next meeting, "Some Experiences in the Present Epidemic of Influenza." Discussion opened by Dr. J. J. Marshall of Crittenden. We now adjourned to meet the third Wednesday in January at the usual hour.

C. A. ECKLER, Secretary.

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**Bullitt:** At a meeting of the Bullitt County Medical Society, the following members were present, Drs. G. W. Kirk, G. B. Hill, W. S. Napper and S. H. Ridgway.

Election of officers was as follows: President, G. W. Kirk, Secretary, S. H. Ridgway. Delegate, G. B. Hill, Alternate, W. S. Napper.

First case, reported by Dr. Hill, was a difficult delivery at full term, which presented the following abnormal conditions, 1st, the excessive amount of amniotic fluid, that preceded the birth of the baby, 2nd, to complete the delivery was a very difficult matter and required the assistance of an another physician, after delivering the head progress ceased and with all of his efforts he could not move it, after consultant arrived and giving an anesthetic, he discovered the child's abdomen full of fluid, and the stronger the traction the greater the obstruction, by reason of the fact that the fluid was pushed above the brim of pelvis, after the true condition was realized, and the child being dead the only thing to do was to cut through the chest and puncture the diaphragm, when this was done about two gallons of water, and the baby was expelled into the lap of the consultant, with great force, the mother made an uneventful recovery. The doctor is at a lost to account for the excessive amount of fluid in the mother and abdomen of the baby. The baby was perfectly formed, no deformity, except as related above.

Second case, also reported by Dr. Hill, of a man suffering from severe asthmatic attacks, they were so severe that the patient spoke of self destruction, the distress being so great, he took him to the city and had an x-ray made of the lungs, by one of the most competent doctors in the city, his diagnosis was emphysema, and incurable, the man came back home resigned to his fate, in a few days after returning home he had a very severe coughing sell, during which he coughed up a hard substance, upon careful examination it was found to be a flat piece of metal. After which the asthma disappeared, the man did not remember having gotten anything of the kind in his lungs, but stated he had used an embry wheel in sharpening hoes or plow points. These attacks existed over a period of eight years.

Several other cases were reported by the others present all of which were freely discussed. Then the members present discussed the report of the Committee on the Medical Care of the sick and the cost, not having a chance to read the reports in detail, but what we did read and discussed, we are more in favor of the minority report. We feel that any form of insurance, group, or contract practice, takes away the inspiration that makes us better or more successful docors.

S. H. RIDGWAY, Secretary.

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**Jefferson:** The 676th Stated Meeting of the Jefferson County Medical Society was held in the City Hospital on Monday evening, February 6th, and was called to order by the President, Dr. I. T. Fugate at 8:00 o'clock P. M., with 115 members present.

Minutes of meeting January 23rd were read and approved.

### Unfinished Business

Under this head the President ordered that amendment to the By-Laws, submitted by Dr. D. Y. Keith at stated meeting January 8th, 1933, be put upon its passage, notice required by the By-Laws having been included in the February program sent to all members.

It was moved by Dr. A. R. Bizot that the amendment be adopted as submitted. Motion seconded.

The question was fully discussed by Dr. Louis Frank, who, while favoring its adoption, expressed the belief that the amendment as proposed was not sufficiently comprehensive and definite as to the scope and duties of the committee, its personnel, etc., and made no provision for necessary expenses of the committee. The question was further discussed by Dr. A. R. Bizot along similar lines and by Dr. D. Y. Keith, who advocated adoption of the amendment as submitted and later making any changes which experience might demonstrate to be desirable.

The President called for a rising vote on the motion and same was declared carried; there being no dissenting votes.

Dr. A. R. Bizot, Chairman of the Committee on Petitions concerning license fee and telephone rate reported that he had turned over signed petitions to the committee from the local Dental Society to be put in shape for presentation to the Mayor and the Telephone Company.

The Secretary presented application of Dr. Allan McNally for reinstatement, duly approved by the Judicial Council, and upon motion by Dr. Oscar E. Bloch, seconded and carried, Dr. McNally was decared duly reinstated to membership in the Society.

There being no further business before the Society, the scientific program was proceeded with as follows:

### Case Report

Tuberculous Pericarditis, Report of Case by Dr. R. A. Griswold.

Discussion by Drs. Weiss, Louis Frank, Turner, Overstreet, and in closing by Dr. Griswold.

### Clinical Pathological Conference

### Case for Diagnosis

1. Clinical History presented by Dr. John R. Gott.

Discussion opened by Drs. Sam A. Overstreet, Hugh R. Leavell, and J. Duffy Hancock, and continued by Drs. G. A. Hendon, J. C. Bell autopsy findings by Dr. A. J. Miller, and in closing by Dr. Gott.

2. Clinical History by Dr. Wm. Edgar Fallis.

Discussion opened by Drs. Emmet F. Horine and C. J. Armstrong, and continued by Drs. Oscar E. Bloch and Dr. Harry M. Weeter, who presented autopsy findins.

The meeting adjourned at 10:05 P. M.

CHAS. M. EDELEN, Secretary.

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## NEWS ITEM

Dr. C. W. Dowden, Louisville, has been appointed a member of the Council of the Southern Medical Association from Kentucky for a regular Council term of three years, the appointment having been announced recently by the President, Dr. Irvin Abell, Louisville. Dr. Dowden succeeds Dr. John H. Blackburn, Bowling Green, who, having served the constitutional limit, was not eligible to reappointment.

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# KENTUCKY MEDICAL JOURNAL

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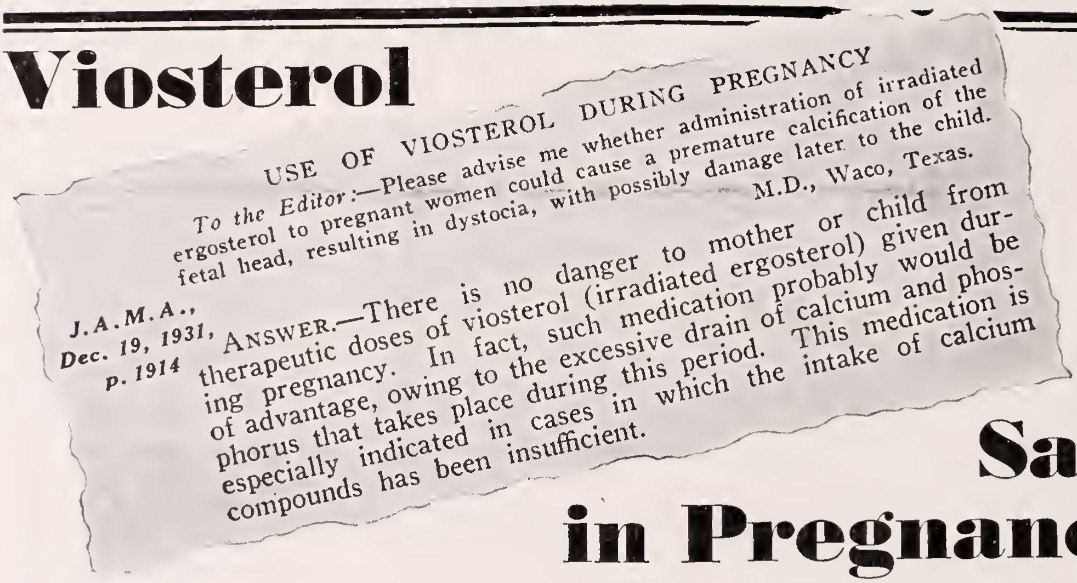

USE OF VIOSTEROL DURING PREGNANCY

*To the Editor*:—Please advise me whether administration of irradiated ergosterol to pregnant women could cause a premature calcification of the fetal head, resulting in dystocia, with possibly damage later to the child.

M.D., Waco, Texas.

*J.A.M.A., Dec. 19, 1931, p. 1914*

ANSWER.—There is no danger to mother or child from therapeutic doses of viosterol (irradiated ergosterol) given during pregnancy. In fact, such medication probably would be of advantage, owing to the excessive drain of calcium and phosphorus that takes place during this period. This medication is especially indicated in cases in which the intake of calcium compounds has been insufficient.

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# KENTUCKY MEDICAL JOURNAL

BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

**Published Under the Auspices of the Council**

VOL. 31 No. 4 BOWLING GREEN, KY. APRIL, 1933

## TO OUR MEMBERS

This will be the last issue of the JOURNAL that will reach you unless you have paid your dues to your County Secretary and he has sent them in the office by April 1st.

The Secretary of the American Medical Association has notified all the states that the apportionment for the next three years of delegates to the parent organization will be made on the basis of membership on April 1st. Our report will leave for Chicago on the 10th. We know that practically every reader of the JOURNAL will be in good standing within a month or two, anyway, and we are writing this urgent message that you may get in now so as to help with our standing in relation to the other state organizations.

There was never a time in the history of the Association that as many and as complicated problems confronted organized medicine. It therefore behooves us to be closely organized that we may accomplish the best results for the protection of the health and lives of the people who are dependent upon us.

## THE MURRAY MEETING

Preparations are well under way for the Eighty-Third Annual Meeting of the Kentucky State Medical Association, which will convene in Murray on Monday, September 11th. The general sessions will be held in the spacious auditorium of the Murray State Teachers College, the foyer of which offers ample space for commercial and scientific exhibits, registration booth and lounging.

Murray is accessible by automobile or train from every section of the State, and the Convention will afford opportunity to visit Western Kentucky at the season of the year when it is most delightful. Rooms will be available at exceptionally low prices; meals will be served at the College cafeteria.

The Program Committee is said to be preparing several innovations. The Association is a thoroughly democratic organization, with no special rights or privileges for any individual or aggregation of individuals. Any member desiring to participate in the program is requested to write to the Committee Chairman, G. A. Hendon, M. D., Louisville.

## THE AMERICAN ASSOCIATION FOR THE STUDY OF GOITER

The American Association for the Study of Goiter, for the fourth time offers Three Hundred Dollars as a first award, and two honorable mentions for the best three essays based upon the original research work on any phase of goiter presented at their annual meeting in Memphis, Tenn., May 15th, 16th, and 17th, 1933. It is hoped that this will stimulate valuable research work, especially in regard to the basic cause of goiter.

Competing manuscripts must be in English and submitted to the Corresponding Secretary, J. R. Young, M. D., 670 Cherry St., Terre Haute, Indiana, U. S. A., not later than April 1, 1933. Manuscripts arriving after this date will be held for the next year or returned at the author's request.

## POSTGRADUATE WORK

The Medical Colleges everywhere are reporting an enormous increase in the number of physicians taking postgraduate work as a direct result of the depression. Many physicians, now finding themselves living on their resources, evidently feel that this is an opportune time to study special subjects in which they are interested.

Mindful of this, the State Medical Association and the State Board of Health have, under Doctor Barbour's splendid leadership, arranged for a series of postgraduate studies in obstetrics under Doctor J. R. McCord, Professor of Obstetrics, Emory University, Atlanta, Georgia, at various strategic points in the State. Doctor McCord's dates will be as follows:

April 3-7, Louisville
April 17-21, Paducah
June 26-30, Lawrenceburg
July 10-14, open dates.
July 24-28, open dates.
August 7-11, Ashland
August 21-25, open dates.

Doctor McCord is one of the most practical and effective teachers of obstetrics in the United States. His demonstrations will prove of value to every man interested in this important field of medicine. We trust as many of our members as possible will arrange to be present at one or more of his series of lectures and demonstrations. There will be no charge to members of the Association.

Doctor Barbour presented to the Council, and, with its approval, is submitting to the profession of the State a further plan for postgraduate courses to be taken to the physicians wherever groups of twenty-five or more can assemble for a week's course. He will arrange for teams of instructors, especially qualified by their knowledge and experience as teachers to meet the profession at such places as will be mutually agreeable. County Societies interested in this proposal should communicate with Doctor Barbour, who will be happy to complete the arrangements.

## THE AMERICAN MEDICAL ASSOCIATION

Milwaukee will be the host for the 1933 session of our National Association and every pleasure and facility of this famous city will be offered to the visiting physicians.

Dr. L. H. South, Louisville, has been appointed chairman of transportation and very attractive, reduced rates with ample stop over privileges have been secured. A complete time schedule will be announced later.

The World's Fair in Chicago will be in progress and under the leadership of the U. S. Public Health Service and the Association of State and Provincial Health Officers, a very instructive medical and public health exhibit has been arranged.

Our delegates have been instructed to make a complete report at the Murray meeting, so that our members may become more familiar with the activities, purposes and policies of our National Association.

## THE AMERICAN WOMAN'S HOSPITAL ASSOCIATION

Many friends and contributors in Kentucky of this Association are very much pleased with the report of the year's work of the Whitley County Health Unit financed by this organization. Dr. Esther Lovejoy, New York, its field representative, after a week's visit and inspection, was so impressed with the activities, accomplishments and the cooperation given by the members of the County Medical Society and the citizens of Whitley County, she plans to finance similar units in Kentucky and other Southern States. This Association will be remembered for its splendid work among the Armenian and Greek refugees in the near East.

## ORIGINAL ARTICLES

## THE MONTREAL MEETING OF THE AMERICAN COLLEGE OF PHYSICIANS

J. Murray Kinsman, M. D.

Louisville.

The 17th Annual Meeting of the College was held in Montreal from February 6th to 10th inclusive. With the hope that a resume of some of the more outstanding features of the meeting might be of interest and of value to the medical profession of Kentucky at large, a brief summary of some of the things which struck one observer as being rather important or especially interesting is here given. It is, of course, recognized that what might impress one person as being important, might not do so to another; and one might consider unimportant what another would emphasize. Moreover, with over 25 clinics, demonstrations, etc. going on simultaneously every morning, it is physically impossible to report on more than a fraction of these phases of the meeting. However, during the afternoon and evening, the General Sessions alone were in progress so that no conflicts arose during these hours. And so, bearing in mind the impossibility of reporting *every* important feature of the meeting as a whole, the following brief summaries of some of the more significant ones, as they appeared to one observer, are offered.

### Arthritis

One went to the meeting hoping that the present chaos concerning the treatment of chronic infectious arthritis might show signs of resolving itself into a semblance of order; one came away feeling that the matter is as muddled as ever. In the morning of the last day, Dr. W. B. Rawls of New York City reported excellent results from the intravenous administration of killed streptococci, preferably autogenous in origin, in doses of 25 to 50 ( or sometimes more) organisms. He claimed results equally as good, at least, as others had obtained from doses of 100,000 or even 1,000,000. But, that same evening, we heard from Dr. W. Paul Holbrook of Tucson, Arizona, an entirely different story. In 1,000 cases of chronic arthritis, of whom 400 cases were of the chronic infectious type, he reported that 100 showed no uniform or marked benefit from removal of foci of infection only; the 100 who received frequent small blood transfusions showed no noteworthy improvement; the 100 who received "climatic therapy" alone evidenced as much improvement as those in any other group; and, notably, of the remaining 100 who received vaccine therapy only, in all the forms recommended by all writers—small doses and large doses; intravenously and subcutaneously; streptococcus viridans and streptococcus hemolyticus; autogenous and stock—none showed any more improvement than those in other groups. He urged that use be made of not only one or two of the methods at our disposal, but of several or all, namely "rest, exercise, heat, massage, prevention and correction of deformity, diet, bowel management, removal of foci of infection, transfusion, vaccines, and climate therapy."

### Blood

The Annual Prize for the best work by a Fellow of the College went to Dr. William B. Castle of Boston, Massachusetts for his studies on the etiology of Pernicious Anemia. Of more immediate practical interest, and very enthusiastically received, was a paper by Dr. Roger S. Morris of Cincinnati on "addisin," as he has named the bone-marrow stimulating hormone present in normal stomachs (he has already published reports on this substance). He obtains addisin by concentrating the stomach contents of either human or swine to very small volume, and after appropriate chemical treatments, sterilizing the resultant liquid. When injected intramuscularly into two cases of pernicious anemia, an unprecedented rise in the reticulocyte count occurred, followed by a sustained rise in the red blood cell count and hemoglobin lasting several weeks. A fortunate accidental confirmation of the presence of this substance in the normal gastric juice was furnished him by a patient with gastric ulcer who, for a period of six months, washed his own stomach out daily. Without any appreciable malnutrition occurring, his red blood count fell continuously during this time and, when he ceased the stomach washing, it quite rapidly returned to normal. Dr. Morris argued from this that the patient must have removed daily sufficiently large quantities of addisin to affect the bone marrow. The work with addisin is still in the experimental stage and it is not yet available for general use.

### Endocrines

One could not help but feel that our knowledge of the endocrine glands is being advanced tremendously today, and that their use in therapeutics is finally being slowly but surely placed on a scientific and rational basis, particularly in the matter of the female sex hormones. No small credit for this must go to Dr. J. B. Collip, professor of biochemistry at McGill University, Montreal, whose work on the parathyroid hormones is well known. A visit to his laboratories makes one realize what a tremendous amount of work he has done and is doing—at present chiefly on the placental hormones, although his assistants are also studying the adrenal and the parathyroid hormones. Most of what follows deals with Dr. Collip's work, except as mentioned.

### Adrenals

Dr. Collip and his assistants have kept adrenalectomized rats alive indefinitely—which otherwise would have died within 12 days—by feeding them whole adrenal glands, washed in water to remove the adrenalin. They brought one patient out of the terminal coma of Addison's disease and kept her alive and quite well for several weeks, but were finally obliged to stop treatment because of the impossibility of obtaining a sufficient supply of adrenal glands. They are convinced that Addison's disease can be cured *provided* that a sufficient supply of glandular material can be obtained.

### Parathyroids

Work on these glands is still in progress, directed particularly toward the bone, blood and urine changes that occur following the injection of parathormone. They have shown a tremendous increase in the calcium content of the urine for a few days following an injection. This calcium comes from the bones, in which secondary osteoblastic or osteoclastic changes occur. They reach the conclusion that overuse of parathyroid hormone may be distinctly harmful.

### Placental Hormones

Quite his most interesting work, and at the same time possibly the most far-reaching in its clinical possibilities, concerns various extracts which the placenta yields on treatment by various chemical manoeuvers. At least 3 and possibly more separate and distinct hormones can be extracted from it. By treatment of the "gland" with alcohol, a precipitate is formed which may ultimately be purified into an anterior-pituitary-like substance, which the authors call "A. P. L." The filtrate can be separated into two parts by ether extraction, the ether-soluble portion yielding "Estrin," similar in most respects to the substance commonly known as Theelin; and the ether-insoluble portion yielding a substance named at the suggestion of Professor McCollum of Johns Hopkins, "Emmenin" (pronounced Em-een-in.)

Dr. Collip has concentrated his attention on the first and the last of these hormones. Work on the latter has progressed so far that the substance is now being marketed commercially by a Canadian pharmaceutical firm. Of its physiological and experimental aspects, suffice it to say here that it is an oestrogenic substance, producing oestris in the pre-pubertal rat, but not in the castrated animal, thus definitely establishing that it acts by *stimulating* the ovaries. It is not, therefore, replacement therapy, as Theelin is, and is of no value in the castrated woman. Clinically, brilliant results are claimed for the use of Emmenin especially in those cases of headaches associated with the menstrual periods, and in certain cases of dysmenorrhea. Results in the menopausal state are less satisfactory, but it still appears to be of benefit within the first year after the onset of symptoms.

The A. P. L. fraction is still being intensively investigated. Its effects are similar to those of the true secretion of the anterior portion of the pituitary gland, but certain important differences have led the investigators to call it anterior-pituitary-like, rather than antuitrin (or antuitrin-S, which it resembles in many important respects). A. P. L., too, is oestrogenic, but this effect appears to be overshadowed by the effect on the ovaries, producing a great overabundance of corpora-lutea, which in turn produce secondary effects. Clinically, its chief use seems to be in menorrhagia and metrorrhagia. Although still being actively investigated experimentally, it also is on the market under the name "A. P. L."

### THYROID

Dr. James H. Means of Boston, Massachusetts, reported upon the use of Lugol's solution as an aid in the diagnosis of hyperthyroidism, especially in doubtful or borderline cases. He stated that following the use of Lugol's solution, the basal metabolic rate will almost invariably become significantly lower in true hyperthyroidism, and will rise again when the Iodine is stopped; whereas in nontoxic cases, any lowering of the Basal Rate will be insignificant in degree. Moreover, this holds good even if the rate is within the so-called upper limit of normal when Iodine is started. He presented graphs showing cases where the initial rate was between +10 and +15, which fell to below 0 upon the administration of Lugol's solution, and returned to the original level when the drug was withdrawn. These cases, he said, were later proven to have been hyperthyroid. Of course, fairly frequent determinations of the Basal Metabolic Rate are essential but one became somewhat convinced that the results justify the time and work consumed.

Dr. George E. Pfahler of Philadelphia, in a paper savoring somewhat of overenthusiam, reported upon the irradiation treatment of hyperthyroidism, claiming that in a large series of cases, the end-results were fully as satisfactory as by surgical treatment. Dwelling at some length upon the widely believed drawbacks to irradiation therapy, he claimed that such things as the excessive development of scar tissue, thus making difficult surgical technique should surgery later become necessary; interference with the function of the parathyroids; irritation of the mucous membrane of the trachea and oesophagus; subsequent hypothyroidism—all of which have been attributed to x-ray therapy by its opponents—are largely myths and have been unduly emphasized by other workers.

### HEART

No striking or unusual facts were reported in cardiology. Dr. Paul White created a mild stir by advocating the use of alcohol in the form of wine or a highball as a daily habit in angina pectoris, with the idea in mind that alcohol in such moderation relaxed the nervous tension of the patient and decreased the number and severity of attacks. His colleague, Dr. James White, also advocated alcohol in angina, but in the form of injections into the upper thoracic nerve roots Reviewing the subject of the surgical treatment of angina pectoris, he expressed his conviction that cervical sympthectomy should be given up because of the risk attached to the operation, and the uncertainty of the result, and that in selected cases, alcohol injection of the nerve roots be made the procedure of choice. This method, while not without a slight degree of risk and frequently followed by a neuritis of two to four weeks duration, gives results which are more certain and as prolonged as cervical sympathectomy.

Dr. John E. Greiwe of Cincinnati stated that pulsus alternans did not have the universally fatal import usually attributed to it and that frequently it could be made to disappear at will.

### LIVER

Much was heard concerning the *galactose test* for liver function. Dr. George M. Piersol, now President of the College, read a paper emphasizing its simplicity and its importance as a test of liver function in borderline cases. Dr. T. B. Magath of Rochester, Minn., also considered it a valuable addition to our diagnostic armamentarium. Dr. Magath, in an excellent presentation, outlined the various tests employed for the determination of liver function, and stated that he considered the van den Bergh, the Galactose and the Bromsulphonephthlein tests the most valuable, with the emphasis on the van den Bergh. Dr. Robert N. Ritchie of Montreal and Dr. Wallace M. Yater of Washington, D. C., also showed x-ray pictures of the liver following the intravenous administration of *thorium dioxide.* Dr. Yater pointed out its value in the diagnosis and differential diagnosis of carcinoma of the liver, but also emphasized its dangers and enumerated the contra-indications; namely, chronic heart disease, chronic nephritis, and fever.

Other reports of great interest but difficult of brief summarizing, were those of Dr. Stanley Cobb of Boston on the cerebral circulation, of Dr. Wilder Penfield of Montreal on "the evidence for a cerebral vascular mechanism in epilepsy," and by Dr. Walter M. Simpson of Dayton, Ohio, on the treatment of general paresis and chronic arthritis by the radiotherm—an apparatus for raising the internal heat of the body.

The lighter side of the meeting was furnished by Professor Stephen Leacock, Canadian humorist, who at the Annual Banquet, discarding his prepared address and speaking extemporaneously, deplored the modern educational system as too complex, and held the new Turkish alphabet up to admiration as the only one in the world which resulted in words being pronounced as they were spelled.

## ORBITAL TUMORS WITH CASE REPORT*

Jesse H. Simpson, M. D.

Louisville.

This brief extract of S. Ernest Whetnall's description of the anatomy of the orbit is well worth reviewing.

The roof of the orbit is formed by the frontal and lesser wing of the sphenoidal bone.

The lateral wall by the zygomatic and greater wing of the sphenoid, together with a small part of the frontal.

The floor by the maxilla, palatine, and part of zygomatic.

Medial by the frontal, lacrimal, ethmoidal, and body of sphenoid.

There are ten appertures of the orbit, four communicating with the cranium; one with the nose; and five with the face, and are as follows:

1. Optic canal transmitting the optic nerve; ophthalmic artery; sympathetic fibres from the carotid plexus; and orbital prolongations of the meninges as sheaths round the optic nerve.
2. Superior orbital fissure transmitting the third, fourth, sixth and ophthalmic division of the fifth cranial nerve; the ophthalmic vein; the sympathetic and sometimes also sensory root of the ciliary ganglion and some filaments from the cavernous plexus of the sympathetic system; the orbital branch of the middle meningeal artery.
3. Ethmoidal canal anterior transmitting the internal nasal nerve and anterior ethmoidal artery.
4. Ethmoidal canal posterior transmitting the nerve of Luschka and posterior ethmoidal artery—probably also lymphatics through both canals.
5. Naso-lacrimal canal transmitting the naso-lacrimal duct.
6. Infraorbital fissure (to infratemporal fossa) transmitting the infraorbital nerve and blood vessels; the veins connecting the ophthalmic and pterygoid plexuses.
7. Zygomatico-temporal canal (to temporal fossa) transmitting the corresponding branch of the zygomatic or orbital branch of the superior maxillary division of fifth nerve together with an artery.
8. Zygomatic facial canal (to the cheek) transmitting the corresponding branch of the superior maxillary division of fifth nerve together with an artery.
9. Infraorbital canal (to cheek) transmitting infraorbital nerves and vessels.
10. Supraorbital notch and frontal notch to frontal region, transmitting the branches of supraorbital nerves and vessels.

Considering the contents of the orbit, therefore, containing besides the eye ball, the lacrimal gland, orbital fat, cellular tissue, muscles, veins, arteries, lymphatics, nerves—motor sensory, and of vision, in close proximity to the paranasal sinuses, frontal, ethmoidal, sphenoidal, and antrum, it is not strange that such a variety of tumors are found in this region.

As to the pathology of neoplasms of the orbit, Collins and Mayons' comprehensive classification is hereby given, divided as it is into teleplasms, metastatic growths and cysts, the latter, however, omitted:—

I. Teleplasms arising in parts derived from cuticular epiblast.
    A. Surface epithelium
        Squamous carcinoma or epithelioma papilloma.
    B. Glandular epithelium
        1. Glandular cancer of the skin or Rodent Ulcer.
        2. Carcinoma of meibomian glands.
        3. Adenoma of the eye lids.
        4. Carcinoma and adenoma of the lacrimal gland.
    C. Congenitally sequestered epidermic masses.
        Moles or nevi and the malignant growths arising from them.

II. Teleplasms arising in parts derived from neural epiblast.
    Glioma or neuro-epithelioma of the retina.
    Glioma or Gliomatosis of the optic nerve.
    Innocent growth of the Pars Ciliares retinae adenoma.
    Melanoma, innocent pigmented growth in the uveal tract.
    Melanotic carcinoma, malignant growth starting in the pigment epithelium.

Teleplasms arising in parts derived from mesoblast
    Sarcoma, intraocular, epibulbar, and orbital.
    Lympho-sarcoma and lymphoma
    Mixed mesoblastic growth, neurofibroma and neuro-fibromatosis, osteoma,

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*Read before the Medico-Chirurgical Society.

myoma, hemangioma, lymphangioma.

(2) Metastatic Growths: They are of the opinion that sarcoma is disseminated by emboli of the cells from the parent growth, but that in carcinoma the cancer cells at the seat of the primary growth extend into the lymphatics then infiltrate and grow along them into the surrounding parts.

They mention metastatic intraocular carcinoma, metastatic thyroid tumors of the orbit (adeno-carcinoma), and orbital metastatic lympho-sarcoma.

Symptoms: The most constant is proptosis, perhaps the earliest symptoms occasionally met with is diplopia, pain in ratio to amount of pressure on sensory nerves and visual disturbance.

Differentiation must be from cysts, meningocele and encephalocele, periostitis, perotoses, hyperosotoses, exostoses, orbital cellulitis, abscess, thrombosis. The cavernous sinus, so called pulsating exophthalmus, hemorrhage into orbit.

The following compilation of case reports found in more or less recent literature available to me represent a fairly broad range of types seen:

I. Teratoma (congenital), 3 cases (Corbett, J. J. 1925; Weidler, 1928; and James Kearney, 1926). Kearney's research of the literature at this time revealed only ten other cases.

Cavernous Hemangioma, 5 cases (A. B. Bruner, '29; Arnold Krapp, '29; Glenn Curry, '27; Cresswell & Briggs, '30; D. Shepiro.) Choloroma, 2 cases (Cyril Barnert, '24; Gimble, '27.) Lympho-Blastoma, 2 cases (Wright; Sedore, Astier and Candiere, '31.) Osteo Sarcoma, 2 cases (Zentmayer, '25; Benedict, '25.) Cystic Osteoma, (Benedict, '25..) Squamous cell carcinoma, 2 cases (Francis Suker, '30; Carey, '30.) Squamous cell epithelioma (D. Kirby, '31.) Melano sarcoma of Conjunctiva (H. M. Morton.) Melano sarcoma, 3 cases (D. Kirby, '31; McKall, '31; Carey, '30.) Melanoma surrounding optic nerve (Casanova, '31.) Adeno-Carcinoma, lacrimal gland (Benedict and Braders, '30.) Cylindroma (M. Del Duca, '30) Retro-bulbar sarcoma (M. Del Duca, '30.) Epithelioma of meibomian gland (D. Dozoresen, E. Ionesin; their search of literature produced only 48 cases.) Papillary epithelial (C. C. Sailhof, '23; Albrecht called this Homartoma.) Papilloma, (Carey, '30). Lymphangioma (Franklin & Cordes, '24.) Primary Cholestoma of sinuses and orbit, followed by carcinoma (Frank Spencer, '30.) Perithelioma (Bledson, '27.) Multiple myxoma and Recurrence (S. F. Gifford, '26, '29.) Epithelioma adenoids cysticum (Davis Garrett, '31.) Endothelial sarcoma, upper lid (T. Fiare, '30; Carey, '30.) Zanthoma or Liposarcoma (Carey, '30.)

Tumors wherein the source of the metastasis was reliably traced—Goldstein & Wexler, in Archives Ophthalmology, September, 1931, report a case of Carcinoma of the sheath of optic nerve metastasizing from carcinoma of the stomach.

Their comment that tumor cells in the blood vessels of the lungs, arteries of spleen and kidney, in this case proves that distribution of metastasis by the blood stream is possible.

Frank E. Burch reports in Archives Opth., March, 1932, a case of orbital metastasis from malignant tumor of suprarenal gland in an adult, and makes the comment that such origin can be accounted for in four or five of the thirty-three adult cases reported in the literature, (in children orbital tumors of this origin are not infrequent.)

In the August 1932 Archives of Ophthalmology is a report of unusual interest by Gaza De Takats of his experience as a member of the Surgical Staff of the University of Budapest. This very remarkable experience embraces two hundred and forty-six cases of orbital conditions, and are divided into five groups, namely:

(1) Eight cases of congenital anamolies
(2) Fourteen cases of injuries
(3) Thirty-three vascular lesions
(4) Seventy-six infections
(5) Ninety-four neoplasms.

Diagnosis of these orbital neoplasms (1914-1930) are as follows

BENIGN

Fibroma (2)
Osteoma (5)
Ganglio-neuroma (2)
Optic nerve tumors (Glioma; Fibro endothelioma; Fibro-myxoma) (6)

MALIGNANT

Epithelial
Epibulbar (14)
Peribulbar (3)
Orbitoparietal (2)
Bulbar (Melano and glioma) (23)
Retrobulbar (Round and spindle cell sarcoma) (23)
Orbito Parietal (Osteogenic Sarcoma) (12)

His table of operative procedure was as follows:

Transpalpebral Orbiotomy—35 cases
Transpalpebral conjunctival orbiotomy—1 case
Resection of Lateral Wall—55 cases
Approach through medical or inferior wall (sinus operation)—70 cases
Approach through superior wall (Craniotomy)—6 cases
Exenteration of the Orbit—74 cases
Ligation of common carotid—8 cases
Ligation of Ophthalmic varices—4 cases

Orbito-Sinusal exenteration—10 cases

Continuing his report as to his comments upon the malignant growths, he says that the bulbar melanomas and gliomas are more malignant than the retro-bulbar sarcomas—the latter, if radically removed and irradiated metastasize late. Much more malignant are the intraocular gliomas by direct extension through the optic nerve; the melanomas by late and distant metastasis.

The most malignant are the lymphatic growths behind the eye—the chloromas of which he reports one case.

The osteogenic sarcomas of the orbital walls do not metastasize locally if they can be removed radically, and hence even if they are extensive, as distant metastasis represents much less suffering.

The primary orbital tumor is not frequently seen; and while I could not find any recent statistics in the literature, I did find a review of those met with in the 100,000 eye cases seen at New York Eye and Ear Hospital from 1897-1900 inclusive in which only 24 were found. The above collection of reports found mostly in American literature in no way represents the number reported in the last ten years, but does portray two things—first, the literature contains not an overabundance of such reports, and reveals a different type of classification of such tumors in contrast to twenty years ago for which the painstaking highly technical pathologic laboratory worker is responsible.

Referring to Collins' and Mayou's description of what they term mixed mesoblastic tumors, they call attention to the fact that the conjunctiva and lacrymal gland are the only structures connected with the eye which normally contain lymphoid tissue.

Necessarily their comment is: these must be the only structures wherein primary lymphomata originate. In very rare instances these growths assume malignant characters, lympho-sarcoma.

They further state that the parenchymatous tissue of the lacrymal gland may be the primary seat of new growths presenting different characteristics; namely between the tubules of the normal gland there is some lymphoid tissue which may be the starting point of lymphomata or lympho-sarcomata, though undoubtedly, however, some small round-celled sarcoma of the gland do occur.

Another form of growth starting in the parynchymatous tissue of the lacrymal gland in which a variety of tissues of mesoblastic origin are found.

The structure of these growths is made up of the following tissues in various combinations:

As columns of endothelial cells, spindle-shaped cells, fibrous tissue, myxomatous tissue, and hyalin cartilage,—for instance a mixture of the various tissues into which mesoblasts may become differentiated.

Growths of the parotid gland presenting a similar structure have been described as endotheliomata, and considered to arise from the flattened cells lining the lymph spaces.

Endotheliomata starting in other parts of the body are, however, different; they are not composed of such heterogenous mixture of tissues, are more cellular and more malignant.

The following case report of orbital tumor which corresponds histologically to the above description of mixed tumor of the lacrymal gland is herewith presented under this classification:

In August, 1931, J. J. F., white female, age 4½ years, was referred by Dr. Blades for my observation. The only clinical history of interest was the removal of an angioma from the bridge of the nose with radium by Dr. W. J. Young, March 18, 1927. Present history that for several months had been noticed—a prominence of the upper eye lid of right eye. Physical examination revealed child of medium build, in no apparent distress. Pupils equal react normally; media and retinal picture normal; no restrictions in movement of the eye ball, except a tendency to look downward; a prominence of upper lid which gave the appearance of being darker in color than the right. Situated fairly well back of the sclerocorneal margin, epi-bulbar and subconjuctival, and in the median vertical axis, was a tumor mass comparable to a medium-sized lima bean. No other tumors nor glands observed.

Patient was admitted to Kentucky Baptist Hospital August 18, 1931. Under chlo-ether narcosis, this above described tumor was removed through a conjunctival incision. A well-encapsulated tumor was removed without incident, except that at the mesial end of the tumor attachments were clipped I felt too closely, and a piece of conjunctiva at this point was removed, and wound edge closed by interrupted silk suture. The following description and report of histological findings by Dr. A. J. Miller is given:

Gross Description: Specimen consists of flattened tumor mass, measuring 18x16x6 mm., pale yellowish gray and has attached a few fibrous tags. On sectioning, surfaces are pale, gray, flabby, and have a few hemorrhagic streaks in the center.

Microscopical Description: Sections of the tumor mass show a variable structure. For the most part it is made up of a polyhedral cell which is quite variable in size, shape, and staining reactions, but many of the nuclei are oval. There are numerous mitoses. The cytoplasm varies much in quantity, from almost nil to a large mass of poorly staining material, the borders of which are quite indefinite. In places these cells seem to grade into others which resemble connective tissue and form the stroma for the above cells. Some of this connective tissue is quite typical, others are atypical and the cells of it are classified with much difficulty. In a few areas there are large spaces which suggest that they were filled with secretion, probably mucoid material. The tumor is quite vascular and many of these vessels are large, cavernous-like structures lined with large cuboidal endothelial cells and some of these seem to extend into the tissue surrounding the vessel so that the diagnosis of endothelioma could be seriously entertained. In several places there is a definite invasion of the capsule, although grossly it seemed that the tumor was well encapsulated. In one other section taken from the periphery a portion of the conjunctiva is present. In this there are cells similar to all of those above described which are invading the conjunctiva, some of them reaching to the basement membrane and resulting in erosion of the conjunctiva, apparently because the tumor is interfering with the blood supply.

This tumor has evidently originated from the lacrymal gland. It is classified as a mixed tumor. Structurally it is malignant, and the invasion of the mucous membrane also indicated malignancy. However, most mixed tumors of the lacrymal glands, as well as those of the palate, parotid gland and other nearby glands are less malignant than their structures indicate. Recurrence, therefore, is frequent, but metastasis is seldom.

Microscopical Diagnosis: Mixed tumor of the lacrymal gland, malignant.

Stitches were removed on seventh day. At this time there was a fold of conjunctiva near the external canthus, and extended mesially about 6 mm. this was slightly resistant to touch. September 11th this conjunctiva fold had increased in prominence to some extent. The appearance one week later was in marked contrast to the above picture; the above described area was the site of a subconjunctival mass the size of a grape; also a small pedunculated mass near the inner canthal fold, and a small tumor midway between the latter and the site of the previously extirpated tumor, also a prominent preauricular gland with several prominent lymph nodes in anterior cervical region. On September 19, a section of the largest mass was made for histological examination, and radium needles placed in tumor masses. The following report of specimen sent Dr. John Allen is here given:

Recurrent tumor of conjunctiva.

Tumor mass 5x8 mm. Outer surface pinkish gray with few hemorrhagic spots under surface, white. Tumor moderately firm, friable.

Sections shows tumor to be composed almost entirely of cells of the fibro blastic type. Cells vary somewhat morphologically, from the large rounded type with oval nuclei to small compact spindle cells. Nuclei hyperchromatic, mitoses abundant. In certain areas the cells have assumed the spindle or star shape of mucoid or embryonal connective tissue, with apparently a mucinous stroma.

The conjunctival surface of tumor is quite vascular, vessels distended, the tumor cells are invading the conjunctival membrane and there is evidence of slight ulceration.

Diagnosis: Rapidly growing fibro sarcoma.

A series of irradiation with both radium and x-ray was given by Dr. D. Y. Keith, and the tumor masses disappeared. My records do not show when definite proptosis of eye was first noticed. Patient's general condition became gradually worse and exenteration of orbit was done January 27, 1932. Content sent to Dr. A. J. Miller with following report:

Clinical Diagnosis: Mixed tumor eye, malignant.

Gross Description: Specimen consists of eye with attached tumor mass weighing 34 grams. Tumor is attached to posterior aspect It is white, rather firm tissue somewhat resembling that of fibro-sarcoma. Specimen is fixed for photograph.

Microscopy: Sections of the tumor show it to be made up of two distinct structures which probably blend in certain parts of the tumor, although the blending is not shown in these sections. In one of them there is a distinct gland-like tumor made up of cuboidal cells, resembling those of the lacrymal gland. The stroma is moderate in amount and edematous. There is moderate leucocytic infiltration. In another section the tumor is made up of spindle cells resembling fibrous connective tissue and is invading skeletal muscle. These tumor cells are producing very little inter-cellular substance and that present is composed of very delicate fibres. In general it has the appearance of carcinoma.

Sections of the previous specimen are reviewed. There is practically no difference between the histology in the two sections except that in the former specimen the blending of the two types of growth is quite clearly shown. The connective tissue element, it seems, is more malignant by far than the epithelial elements. Opinion as to classification of the tumor is not changed from that previously expressed. It seems, however, that the tumor has increased in its degree of malignancy, and that the most malignant portion is connective tissue or sarcoma.

Diagnosis: Mixed tumor of lacrymal gland, malignant.

Patient gradually becoming physically worse, expired February 9, 1932, and while no autopsy was obtained suspicious chest symptoms pointed clinically at least to metastasis to lungs.

Glioma is usually seen about the second year of life and very rarely later than eleven years.

About 25% of the cases are bilateral—either simultaneous or several months apart. Treacher Collins reports an interval of three years. The tendency to spread is along the lymphatic sheaths of the blood vessels, and after invading the choroid will extend out of the globe through the perforating vessels. After escape from the globe, the growth is greatly accelerated.

Metastatic growths may form in the eye itself, in the preauricular gland, in the periosteum of the cranium and facial bones, and in the liver.

Proliferation of the cells seem to proceed out of proportion to the rapidity of its vascular channels so that areas in it become badly nourished and undergo degeneration.

The following case report of a tumor mass histologically resembling retinal glioma is presented:

E. N., 3 years, male white, was admitted April 24, 1932 to the Children's Free Hospital, with a chief complaint of pain and swelling around left orbit.

Previous history: not remarkable except that nine months before admission, patient became unable to see out of left eye and family physician made diagnosis of abscess of the eye, enucleating the eye three weeks later. One month before admission to hospital, patient began to have pain about the left orbit, and eyelids to protrude—with history of loss of weight of ten pounds during this time.

Physical examination revealed the orbit filled with reddish mass irregular in outline and pushing lids well out; a muco purulent discharge present, and absence of the eye ball.

On April 27, 1932 exenteration of left orbit was performed, and capsules of radium placed in cavity, and specimen sent to Dr. A. J. Miller who reports the following findings:

Clinical Diagnosis: Possible glioma retina; possible sarcoma choroid mixed tumor.

Gross Description: Specimen consists of spherical tumor mass with 4 small fragments which together weigh 32 gms. Outer surface of main mass is ragged as if the mass was dissected out. It is irregularly lobulated. Section surface reveals grayish tumor tissue that is extremely friable resembling somewhat a glioma in consistency. It is hemorrhagic. There are numerous portions which are orange-yellow in color, evidently the result of necrosis. Fixation done in Zenker's and formalin and the main mass saved in museum fluid.

Microscopy: Sections show a very cellular tumor in which there is a small amount of connective tissue stroma. In some areas of the sections the stroma is composed of fine network resembling glia, though it is impossible to classify it definitely. The parenchymal cells are round for the most part, a few of them slightly elongated. The nuclear pattern is very dense, so that in many of the cells it is a mass of nuclear substance. In a few of them an irregular network can be made out with many granules. Mitoses are moderate in number and there are a number of atypical mitoses; that is, unequal division of the nucleus, and apparently multipolar division. The cytoplasm is scanty, where present stains moderately with eosin and is occasionally seen to taper off into short, indefinite processes. In some areas there are fibrils which somewhat resemble glial fibrils. The cells are frequently arranged in imperfect rosettes. Much of the tumor is poorly preserved. It is classified as a retinal glioma and it is suggested that the origin is the granular layer of the retina. Generally speaking, these tumors are not very malignant; that is, they metastasize seldom, but are prone to recur and are rather frequently bilateral. Response to radium is moderate but radium cures are not usually expected.

Diagnosis: Retinal glioma.

Patient's progress was satisfactory; he gained in weight, and was quite happy until July 1st, when his condition changed for the worse—malaise, headaches, temperature ranging from 100 to 105, had a slight cough, but repeated chest examinations revealed nothing. Especial attention was paid to intestinal tract, when temperature again became normal; again increase in weight was noticed with general improvement until September 20th when he complained of headache and rheumatoid pain in extremities, accompanied with temperature, malaise and drowsiness and loss in weight. A thorough general examination including spinal puncture revealed nothing abnormal. After thorough cleansing of the intestinal tract over several days, temperature became normal, and malaise and pains gradually subsided.

The possibility of metastasis to the liver in this case presents itself because of the recurrent symptoms which disappear after strenuous attention to intestinal elimination.

October 20th, patient again became listless with headache and rheumatoid pains in extremities. A mass was noticed beneath the skin, immovable and apparently springing from that portion of the frontal bone which forms part of the lateral wall of the right orbit.

X-ray pictures of skull, pelvis, femur, tibia and fibula were negative.

Patient is listless, losing weight, and at the request of his parents was allowed to return home, as prognosis was particularly bad.

## DISCUSSION

**A. J. Miller:** I have brought for your inspection a specimen of one of the tumors mentioned by Dr. Simpson—the mixed tumor of the lacrymal gland. This tumor, in my opinion, is similar to those found in the parotid gland and also in the region of the palate, apparently coming from the gland tissue in it. These tumors were formerly believed to be epithelial in origin and for a long time they were described as epithelial tumors. Other elements in them were thought to be the result of metaplasia and, by the way, this type of metaplasia is very rare. We would not expect to find metaplasia in non-neoplastic conditions, occurring between different types of fundamental tissue; that is, we would not expect to find one fundamental tissue changing into another fundamental tissue; for example, connective tissue from epithelium. In neoplasms, however, such changes apparently do occur, and that is one reason for the notion that neoplastic tissue is made up of cells, embryonic in character, which have retroverted and differentiated along various lines, even into another type of tissue. Usually, of course, that does not occur.

About fifty years ago, these tumors were again reviewed and studied a great deal and at that time the notion was expressed that they were endothelial in origin and had become neoplastic and differentiated into several types of epithelium and several types of connective tissue This theory was very popular for a while but at the present time it is not accepted. It is believed that endothelial cells play a very small part in their origin; that their histogenesis is probably multiple; that is, that the connective tissue elements come from connective tissue and the epithelial elements from epithelium. Whether or not this view will stand is a question. In this particular tumor there was no bone, no cartilage and no muscle. The most prominent parts are connective-tissue-like elements and endothelial-like elements and the graduations from one into the other can be followed very satisfactorily

It happens in mixed tumors sometimes, that one element becomes malignant while the others are more or less dormant so far as neoplastic development is concerned, and in this instance the malignant element developed along lines which made it conform very well to descriptions of fibro-sarcoma. The difference of opinion between Dr. Allen and myself is hardly justified. I had the primary tumor and Dr. Allen did not, and after seeing the material I had, he agreed with me that the term fibrosarcoma hardly described the whole situation.

The other tumor I do not show because it is simply a mass of tumor tissue and not very interesting except for the fact that it looks a little like a glioma such as we find in the brain, composed of grayish, soft friable tissue. If it is true that this individual has metastasis into the liver, I would doubt the interpretation, because these tumors do not metastasize, as a rule, although instances of metastatic development from such tumors are reported. Glioma of the brain is usually malignant in character. So far as their local behavior is concerned, they extend into the brain and sometimes destroy more of the brain tissue than can be filled by their growth. They sometimes extend into the deep fissures of the brain, thus developing very bizarre shaped tumors, with metastasis almost never. A few instances of metastasis have been reported but they are extremely rare.

**D. Y. Keith:** When I first saw the first case described by Dr. Simpson, it was just a few weeks after the removal of the tumor, and even in that short time the recurrent tumor was considerably larger than the original tumor. As described, Dr. Simpson perhaps censured himself for not having removed the contents of the orbit at the first operation. I know from personal observation in dealing with eye-men in connection with tumors of the orbit, how loath they are to remove the eye as long as there is any sight present. In this case, even though he had done a complete enucleation, metastasis would have occurred in all probability.

Another feature of this case was the fact that the metastatic lymphnode tumors were more sensitive to x-ray radiation than we ordinarily see in sarcoma; in fact, it was as sensitive as we usually see in lympho-sarcoma. Within forty-eight hours after treating this patient we could observe a reduction in the size of the lymphnodes and in a few days they would disappear. During this time she would feel very well and gain in weight. Then they would recur and would again prove very sensitive to x-ray radiation. After three series of x-ray treatments there was no further recurrence in the lymph nodes of the neck and pre-auricular chain.

I did not see the patient after she left the hospital following the second operation, but the metastasis into the lung must have been very rapid indeed, as it was only three weeks later that she died.

I am quite sure that this is the first tumor of the lacrymal gland that I have seen. I have seen numerous tumors of the orbit classified as sarcoma in young individuals, some as old as twenty-eight or thirty years, a few have been seen in the aged patients. Most of these sarcomatous tumors do not metastasize as rapidly as it did in this case.

The second case I did not see before Dr. Simpson operated. I saw this patient near the completion of the operation and applied radium in the orbit. I did not see this case again.

I have never seen a metastatic tumor in the contralateral orbit as occurred in this patient. It is not unusual in carcinoma of the female breast but is rare in tumors of the eye or orbital contents.

**S. G. Dabney:** Dr. Simpson's report is all the more interesting because he has gone considerably outside the field of what are generally called tumors of the orbit and has included tumors of the lacrymal gland and what we call intraocular growths.

Dr. Miller, in his discussion, mentioned the possibility of sarcoma of the choroid in the first case reported, that of a child four and one-half years old. Sarcoma of the choroid is nearly always a disease of adult life and very rarely does is occur in young children. Glioma of the retina on the contrary is seen only in young children.

One very interesting feature of glioma was not mentioned; that is, its tendency to occur in several members of the same family. I know of one family in Kentucky in which there were three cases of glioma among brothers and sisters, and another family in which there were two. Metastasis is very rare in these cases of glioma. The prognosis is rarely favorable; but perhaps fifty per cent recover when operation is done promptly. I have never seen it in the early stages. In all the cases that have come under my observation the result was fatal. Both eyes were affected at the time I first saw the patients in several cases.

Just a few words regarding orbital growths. Sarcoma is most common but I can recall having seen only three cases with one fatality and two recoveries. In all of them evisceration of the orbit became necessary sooner or later. One case was in a young man, about twenty years old. At first I did nothing except to remove the growth in the orbit. He went along very nicely and I thought he had a chance to recover. Ultimately, however, evisceration of the orbit became necessary, following which the patient died within a few months.

Another case was in a comely young woman of twenty-three or twenty-four, with a large sarcoma of the orbit but with good sight in the eye. I told her the only wise thing to do was to take out the eye and explained that she could never wear a glass eye satisfactorily. The late Dr. J. M. Ray saw her with me and agreed in the diagnosis and treatment. We did a complete evisceration of the orbit and she was still living the last time I heard from her, a number of years afterwards.

The third case was in a man 68 or 70 years old, who has had both radium treatment and evisceration of the orbit, and who is still living and doing very nicely.

The last case was the only one I have seen since we have had radium. It was used on him.

**Adolph O. Pfingst:** Dr. Simpson has given us an unusual presentation. However, he contradicted himself at the very outset of his paper when he said that there was little he could say about orbital tumors and then proceeds to give us a most exhaustive treatise, more than any of us could digest in one evening.

Speaking first of the cases he reported it appears to me that he again contradicted himself when he entitled his tumors "teratoma" of the lacrimal gland and at the same time referred to them as malignant growths. Teratoma is a neoplasm which seems to have a predilection for the lacrimal gland and that part of the salivary glands made up of the so-called serous cells and which resemble histologically the structure of the lacrimal gland. They are made up of various structures as muscle, cartilage, bone, gland acini, fibrous tissue, etc. They are, as far as my knowledge of them goes, only of a malignant nature in that they grow and encroach upon surrounding structures—in the case of the lacrimal tumors sometimes causing pressure absorption of the frontal bone and encroaching on the cranial contents. They are not malignant in the sense of a tumor as we consider carcinomata and sarcomata malignant where the surrounding tissue is infiltrated and in which metastases occur. It seems to me that I have had an unusual number of lacrimal gland tumors, for I have had six cases in my private practice. Two of these were quite large, having reached the size of a golf ball. The neoplasms were all surrounded by thin fibrous capsule and were removed in toto and the wound closed by suture. No after treatment was given. Two of the cases, the larger ones, were operated 15 or 20 years ago and there has been no recurrence, nor has there been a recidive in the other smaller and later cases.

Regarding the case of glioma I think that they represent the most malignant forms of neoplasm. They occur in very young children, are supposed to originate in the glia cells of the retina and, hence, are according to the present nomenclature known as retina blastoma. They spread very rapidly, often invading the commissure and extending to the other eye and frequently also infiltrating the cranial bones and the brain substance. As far as I know these cases all end fatally and treatment has been of no avail.

In speaking of orbital growths in general we might, for the sake of study, divide them into the benign growths and the malignant. A variety of non-malignant have been reported as occurring in the orbit—osteomata, lipomata, hemangiomata, lymph angiomata, cavernous angiomata, neuromata, etc. While taking my training in New York I had the pleasure of assisting the elder Knapp in the removal of an encapsulated cavernous angioma larger than the eyeball itself, from the muscular funnel of the eye by tenotomizing the external rectus and reattaching it to the globe after the removal of the tumor.

Dermoid cysts which are quite common in the orbit, are usually classed with the benign tumors. They usually occur in the anterior portion of the orbit but may extend deep into the cavity. A few years ago Dr. Wolfe and I operated on a nurse for a cyst which extended deep into the orbital cavity and involving the external rectus muscle. Mucoceles of the accessory nasal sinuses pointing into the orbital cavity are also classed with the innocent growths of this cavity.

The malignant growths of the orbit may be primary; secondary by extension from the eyeball (the most common variety) or from the bone and surrounding cavities, or they may be of a metastatic nature.

Primary malignant growths are not common. I do not remember having seen one. They usually spring from the periosteum or from the fibrous structure of the orbital contents, hence are nearly all sarcomata. Secondary growths, as most of them come from the eyeball, are usually melano-sarcomata. In children gliomata arising in the retina frequently invade the orbit. Sarcomata, also epitheliomata, may invade the orbit from the nasal accessory cavities. Metastatic orbital tumors are not altogether infrequent, their make-up depending upon the nature of the primary neoplasm from which they metastasize.

The first symptoms of an intracular growth frequently are diplopia and proptosis. Unilateral exophthalmos is always suspicious of an orbital growth. It may become quite pronounced and the eyeball may become displaced to one side or the other depending on the size, position and consistency of the tumor. By palpating the orbital cavity around the side of the eyeball with the little finger the presence of a tumor may often be corroborated. The condition may be confounded with exophthalmos associated with goitre. Unilateral exophthalmos in Basedow's disease does occur, at least the fellow eye may be so little involved that it may be overlooked. I had a case of this kind a few years ago with Dr. Bizot in which one eye was so prominent that it often protruded in front of the eye lids—a paraphymosis as it were. There was no tachycardia, no increased metabolic rate and the Stellwag von Graefe and other diagnostic signs in exophthalmic goitre owing to the marked proptosis were difficult of recognition, hence, this case caused much study before it could be differentiated from an orbital tumor.

X-ray is of considerable value in differentiating between mucoceles and true neoplasma and also in the diagnosis of osteomata.

**L. Wallace Frank:** Two points which have been brought out in the paper and discussion have interested me very much. First, the question of metastatic lesions in the orbit. We know that carcinomata metastasize through the lymph channels. Here the lymph drainage is from the orbit into the preauricular glands, thence into the cervical region. I do not know of any lymphatics beginning outside the orbit and extending into it. There are lymphatics that run along in back of the orbit but they are relatively minor compared with the major lymphatics of the orbit itself. Consequently, I believe that any neoplasm in the orbit of metastatic origin must be blood-borne and that the lymphatic drainage has nothing to do with it.

As to the hereditary tendency of glioma, it has been my observation that heredity plays a very definite part not only in glioma, but in malignant disease of any part of the body. For example, we had a case of malignancy of the uterus in a woman whose mother and grandmother had died of the same disease. We have had other cases in which a history of carcinoma of the breast could be traced back through three or four generations. In just what percentage of cases of maligancy this is true I do not know, but certainly there are individuals possessing an hereditary predisposition, so to speak, to malignant disease in certain portions of the body and under the proper stimulus carcinoma begins to develop.

**C. D. Enfield:** I have very much enjoyed hearing Dr. Simpson's paper and the ensuing discussion. I shall not attempt to add to it as it has been my good fortune to have no occasion to treat primary malignancy of the orbit.

Along the line of Dr. Frank's remarks considering the hereditary factor in cancer, I think Maude Slye's work is most convincing. In a very general way her conclusions based on experience with many generations of cancer mice is that normally the resistance to cancer is inherited as a Mendelian dominant factor while lack of resistance is inherent as a recessive.

**Louis Frank:** As has been pointed out by the last two speakers, heredity as a factor in the production, not only of carcinoma, but of all tumor growths is one the extent of which we do not even suspect at the present time. When one studies the happenings with relation to tumors in true or identical twins, one will find it very suggestive of the prominent part played by heredity. It is true, however, that in tumors, as in all other conditions in which heredity is a factor, there will be instances in which it will skip a generation or even two generations, and appear in the third. In my own experience, I have been very much impressed by the number of instances in which I have observed the occurrence of tumors of the breast in members of the same family group. While exact statistics are not available at the moment, I am sure that in the majority of malignant conditions which have come under my observation, embracing, perhaps, some thousands of cases, the family history has shown repeated occurrences of the same disease in members of the same family; in fact, the patient who does not give such a history is usually one who knows very little about his or her family history.

Another phase of the discussion which has interested me is that concerning so-called mixed tumors. The idea that seems to prevail at the present time among a great many biologists and zoologists based upon the developmental rate in connection with malfomations is that we really have here an abortive attempt at twinning, and when one studies the literature on the subject, one cannot help but believe that interrupted development does play a very important part in the formation of such tumors. Experiments upon various types of animals have shown that if there is any delay in the cell division of the blastoderm (and this can be brought about experimentally by withholding oxygen, reducing temperature, and various other methods) the cell, instead of going on to further development, attempts to twin, and two embryonic shields are formed and distance between the points of separation of these embryonic shields determine the type of malformation that is formed. If there is separation of 180 degrees, the result is true or identical twins; separation at 90 degrees may result in double-headed monsters; separation at 80 degrees produces other anomalies or may give rise to growths to which we apply the term dermoid.

Therefore, when we review the work which has been done by botanists, zoologists, physiologists and anatomists along this line, it does not require any great stretch of the imagination to conceive how these tumors occur.

**J. Garland Sherrill:** Dr. Simpson's paper has impressed me more than any I have heard in a long time. He has evidently given the subject much study and has presented it in a very instructive manner.

Like Dr. Pfingst, I am under the impression that there are lymphatic vessels and perhaps glands in the orbit, and that there are some lymphatics among the lacrymal glands. However, this is an anatomical point that can easily be cleared up.

**A. J. Miller:** I do not know enough about the lymphatics in the orbit to be able to add anything to the discussion on that point, except that during the past summer, I had occasion to look up the question of lymph follicles about the eyeball and, as far as I can ascertain from a search of the literature, there are none, normally. However, it cannot necessarily be inferred from this fact that there can be no lymphoid tumors in the orbit. We have lymphoid tumors occurring in various parts of the body in which there are no lymph follicles. The skin, for example, has no lymph follicles, yet there are so-called primary lymphoid tumors of the skin.

Within the past few months, I had the opportunity of seeing a section of what was called a primary lympho sarcoma of the prostate, yet there is no lymphoid tissue in the prostate normally.

The explanation is that there is a mild chronic inflammation of the tissues, which results in an accumulation of lymphocytes (which are quite common in the prostate and in the skin) and these inflammatory cells become malignant and in that way a lymph-cell tumor may occur in almost any of the tissues of the body.

**Jesse H. Simpson,** (in closing): Regarding Teratoma, the reported case of Kearney with his compilation of cases in medical literature at that time referred to true teratoma of cuticular epiblast and neural epiblastic and mesoblastic tissue and were congenital. In contra-distinction to some mixed tumors not including all germ layers.

# MALPRACTICE SUITS*

J. B. Lukins, M. D.

Louisville.

The history of medicine is a fascinating and dramatic story.

In that unusual and brilliant book. "Devils, Drugs and Doctors," Dr. Howard W. Haggard of Yale has accomplished much in placing the medical profession where it justly belongs in the public estimation.

He has shown that the advances in the art of obstetrics from barbarism to aseptic technique and the amazing progress in surgery to a place of scientific exactness, have gone hand in hand or even preceded the great onward march of civilization.

We would expect that mankind would never tire of erecting monuments in honor of a profession that has spent itself to make life endurable on this earth.

Dr. Haggard has well written, "The attitude toward medical science is not merely one involving a lack of enthusiasm and indifference to benefits conferred, but is rather one of active opposition. The anti-vaccinationists, for instance, oppose one of the most essential and best proved measures of preventive medicine; and it is due to them that smallpox persists. The anti-vivisectionists oppose medical investigation both for the winning of new knowledge and for the application of knowledge already won. The adherents of cult-healing advocate the abolition of all medical science. Although they are a minority of the voting population, they are an active minority who take advantage of the indifference of the majority of our people.

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*Read before the Kentucky State Medical Association at Louisville, October 3-6, 1932.

They continually introduce laws obstructing medical science and at every opportunity create difficulties for the legal maintenance of medical control. Through their activity the compulsory vaccination laws have already been repealed in two states. Unfortunately, smallpox does not respect state lines or remain where legislation favors it, but is carried into other states. The complete eradication of smallpox in the United States is thus prevented."

The discoveries of science, the exploits of the medical profession and particularly the untiring, self sacrificing labor of the clinician have never occupied the place in history they so justly deserve.

Every schoolboy is familiar with the history of Napoleon, but until recently only a few ever heard of Pasteur. We are happy, however, to live in an age where the era of the conqueror is passing, the day of the scientist is at hand.

Someone has said that mortal ears are still attuned to martial music, but there will come a time when enthusiasms higher than those born of brass and drum beat, will stir men to the march of science, and the plaudits of the multitude will reverberate, not for the victors of men, but for the conquerors of microbes, pestilence and disease.

The scientists form the first line of attack upon the enemies of the human race, but just behind them and in close contact are the practitioners of the healing art. The scientist experiments and proves, the doctor takes the discovery and applies it for the benefit of mankind. Each is dependent upon the other, both are indispensable.

In these times of great economic and mental distress the doctor is called on even more than usual to give of his time and skill. This we have all gladly and unstintingly done. This has been estimated to be as much as 365,000,000 dollars annually.

In addition to this he must keep up his personal appearance. His mental and physical equipment must pass the rigid test of more or less jealous colleagues as well as the critical eye of the most exacting patient.

Economic conditions have changed many standards, but in the eyes of the public the physician or surgeon must continue to be the superman of old, the one to whom they cling even more closely when suffering and gloom and poverty overtake.

Everyone of us who has been honored with the degree of M. D. may do well to recall the oath of Hippocrates which says, "With purity and holiness I will pass my life and practice my art. Into whatever houses I enter I will go into them for the benefit of the sick and will abstain from every voluntary act of mischief and corruption."

In addition to the higher standard of character required of us, in addition to exact technical knowlege of which we are in daily need, we must become astute judges of human nature.

Happily the very nature of the work of our profession, the relationship of patient to doctor trains us in this respect.

We encounter every human trait from the noblest impulse to the basest intention.

We are not only the recipients of the most gracious praise and lavish gratitude, but on the other hand we are often the victims of the basest ingratitude and active opposition.

We are not only not paid for our work, but in many instances are asked to recompense the patient or the family if the results are not all that they expected.

Twenty-four years ago the Medico-Legal Division of the Kentucky State Medical Society was formed for the purpose of defending unjust malpractice suits. During these years about 250 suits have been filed against the members of the Kentucky State Medical Society. There are in addition about an equal number of threatened suits each year.

Until the last eight years when the work came into our hands the records are more or less incomplete. As far as I can ascertain the final verdicts against the doctor have not been more than 5%. Our percentage of successful terminations is increasing each year. We have a better organization—we have more prompt reports from the defendants—we have better lawyers and in most instances we have better co-operation in the profession.

None of us are perfect. We are all human and therefore liable to err.

We may be expert diagnosticians and may possess all available knowledge as to treatment and still make an error of judgment.

In a sense of fairness and justice the law does not require of us infallible judgment or expert skill, but merely ordinary care and average skill.

In a very exhaustive discussion of this subject, Mr. Lloyd Paul Stryker, attorney for the Medical Society of the state of New York says:

"In a manner unsurpassed for clarity and brevity, the New York Court of Appeals thirty-two years ago, in its luminous opinion in the Pike case laid down the law on this subject. This famous decision has been quoted with approval throughout the length and breadth of the United States. Its clear language has frequently been elaborated upon, but never improved by the courts of other jurisdictions.

"A physician and surgeon, by taking charge of a case," the New York court declared, "impliedly represents that he possesses, and the law places upon him the duty of possessing, that reasonable degree of learning and skill that is ordinarily possessed by physicians and surgeons in the locality where he practices, and which is ordinarily regarded by those conversant with the employment as necessary to qualify him to engage in the business of practicing medicine and surgery. Upon consenting to treat a patient, it becomes his duty to use reasonable care and diligence in the exercise of his skill and the application of his learning to accomplish the purpose for which he was employed. He is under the further obligation to use his best judgment in exercising his skill and applying his knowledge."

As to the ordinary practitioner, that is, one not claiming to be a specialist, the court enunciated this fair principle:

"The rule in relation to learning and skill does not require the surgeon to possess that extraordinary learning and skill which belong only to a few men of rare endowments, but such as is possessed by the average member of the medical profession in good standing."

Then after emphasizing that every physician "is bound to keep abreast of the times," and that he may not depart from "approved methods in general use," the court continues:

"The rule of reasonable care and diligence does require the exercise of the highest possible degree of care, his implied engagement with his patient does not guarantee a good result, but he promises by implication to use the skill and learning of the average physician, to exercise reasonable care and to exert his best judgment in the effort to bring about a good result."

An analysis of this rule discloses three essential obligations which the law imposes upon a physician and surgeon who takes charge of a case:

(1) That he must possess "that reasonable degree of learning and skill that is ordinarily possessed by physicians and surgeons in the locality where he practices," such as is ordinarily regarded by those conversant with the employment "as necessary to qualify him in practicing medicine and surgery."

The words "reasonable" and "ordinarily" are the key words. The physician is not required to have that "extraordinary learning and skill which belong only to a few men of rare endowments, but such as is possessed by the average member of the medical profession in good standing." But it is not even to the general average of the profession which the individual must conform, it is enough if he possesses such a degree of learning and skill as is "ordinarily" possessed by the physician and surgeon in the locality where he practices. Nothing could be fairer than this rule.

The doctor is not required to be a genius or a superman of medicine or surgery, he is merely required to possess and use "the skill and learning of the average physician."

He is not judged by the high standard which may be attained in some unusually competent medical centre, but merely by that standard which is set him by his brethren in the community where he works.

The physician is "under the further obligation to use his best judgment" not his guess or hasty surmise, not his snap judgment, but his "best judgment." Judgment is the faculty of deciding wisely. This faculty is better developed in some than in others.

The physician must "keep abreast of the times" and must follow the "approved methods in general use." He must know what is going on in medicine, what new discoveries have been made, what old opinions or conclusions have been discarded. Medical and scientific journals, text books, lecture courses, meetings of his county and state medical societies, conferences with especially equipped physicians, these and other means are at his disposal and he will fail to use them at his peril.

The physician, as the Pennsylvania courts perhaps needlessly point out: "deals not with insensate matter like a stone mason, but he has a human being to treat, a nervous system to tranquilize and a will to regulate and control." Just how that human being ought to be treated is a question which varies with the advance of science. What was the proper and approved method of treatment of certain diseases at the time of George Washington would be regarded as sheer barbarism today.

Some of the approved methods of today may seem equally obsolete a century hence. Amazing discoveries and advances have been made since Harvey discovered the circulation of the blood, but much remains to be discovered.

"We are constantly confronted in our study and practice of medicine," Doctor Frederick Peterson has well written, "with the mass of our ignorance of the things yet to be known, and with the defects and limitations of the students of these things. Despite this, however, we are constantly wresting from nature her marvelous secrets and surprising and uplifing the world with our discoveries."

While it is not easy for the busy practitioner to keep himself equipped with all that is transpiring in medicine, yet he will fail to do so at his peril. He must always know what the proper and approved practice is.

However, in the relationship of doctor and patient all the responsibility is not on the doctor.

No doctor can secure satisfactory results unless with the co-operation of his patient, nor can he be held responsible when his patient fails or refuses to follow reasonable and proper instructions or to conform to the prescription or course of treatment of his physician. In such cases the patient is guilty of contributory negligence.

In a famous New York case Judge Pryor charged the jury:

"All the obligation is not upon the physician, but the patient also has his duties to discharge. In particular, the patient must obey the orders and follow the directions of his physician, and if he disobeys such orders or neglects such directions, he cannot hold the physician for the consequences of such disobedience or neglect. Accordingly, I charge you that if you find that the injury of which the plaintiff complains was the effect of her carelessness or neglect alone or was the effect of the defendant's negligence or want of skill in combination and co-operation with her own carelessness and neglect, she cannot recover. Her contributory negligence would defeat the action."

There are many ways in which a patient may contribute to the negligence complained of.

(1) Failure to return for treatment at the proper time.

(2) Removal of appliances, as in the case of a fracture.

(3) Walking without the doctor's consent, failure to properly exercise, etc., and perhaps most important of all, failure to have an x-ray examination made.

You will notice that question in the new questionnaire. Did you advise an x-ray examination?

This should be done regardless of whether they can afford it or not—regardless of whether there is one available in the community or not and in the presence of witnesses. Failure on their part to have it done is their own neglect and relieves the attending physician in a great measure of responsibility in case of a bad result.

A certain doctor in Massachusetts advised his patient to have an x-ray photograph made to determine whether or not there was a fracture. The patient regarded his pocketbook of more importance than his fractured bone and declined to have the x-ray made because of the expense entailed. Later he sued his doctor for malpractice, claiming an improper reduction of the fracture.

"If," said the Supreme Court of Massachusetts, "such a photograph was essential in order to discover the fracture and the physician advised that it be taken and the patient refused this advice, the physician cannot be charged with negligence. The plaintiff cannot hold the defendant responsible for the consequence of his own want of care, nor attribute to him damages resulting from his own neglect and he cannot complain if the injury resulted from his refusal to follow the advice of the attending physician."

A patient, the court continued, "when he places himself in the care of a physician cannot decline to follow his advice or adopt his suggestion, the patient cannot charge the physician with negligence if the patient himself refuses to carry out the directions."

So zealous is the law that the patient shall do his part as well as the physician, that in addition to the foregoing requirements, it has been held that a patient must exercise ordinary prudence, that is, such prudence as could reasonably be expected from an ordinarily prudent patient under similar circumstances. If he does not exercise such prudence, he cannot blame his doctor or recover for that which his imprudence has occasioned.

A doctor, like any other citizen, is a free agent. He may accept or reject a professional call or the management of a case as he sees fit, but once he has accepted the case a contract has been entered into between physician and patient that must be carried out. No form of words or writing is required nor does it alter the facts in the case if the patient happens to be one of charity. Our obligation and our responsibility is the same.

Please remember that in the handling of a case it is through negligence that we are most apt to render ourselves liable to malpractice. A certain well known judge said to me that if every doctor were in the penitentiary for a mistake in diagnosis there would not be prisons enough to hold us all.

An action for malpractice is therefore usually an action in negligence. It is based upon a physician's alleged failure to comply with the duty which the law raises up from his contract of employment. Malpractice has been defined as "the negligent performance by a physician or surgeon of the duties which are devolved upon him by virtue of his contractual relations with his patient; bad or unskilled practice by a physician or surgeon whereby the patient is injured." Malpractice may be the result of ignorance or wilfulness or of negligence.

We frequently hear it said that a malpractice suit is always inspired by some other doctor. I have not found this to be true in every case for it is sometimes due to friends or relatives or designing lawyers.

It is true, however, that generally speaking, no case can be won against a doctor without the aid of expert testimony and expert testimony must be the testimony of another M. D.

The mere fact that there has been a bad result, said the Supreme Court of Illinois, is of itself no evidence of negligence or lack of skill. We do not guarantee a cure or perfect results in any case and this has been so held by the courts. Bad results, alone, do not imply that improper treatment was used. This point was established by no less an authority than Ex-President Judge Taft in the case of a patient who subsequently lost her eye following a cataract operation. She established the fact that she lost the sight of her eye, but produced no doctor—expert witness—to testify that the surgeon's negligence caused the injury.

Judge Taft of course held that unskillful practice or negligence was not proven and the case was thrown out of court. In other words the future Chief Justice of the United States said that the court and jury must be dependent on expert evidence. There can be no other guide.

For the first time in Kentucky, about two years ago, we were fortunate in having a decision from a Kentucky Court of Appeals that has been very beneficial and far reaching. I am informed by our attorney, Mr. L. R. Curtis, that section 2516 of the Kentucky Statutes covers this question, and is as follows:

"An action against any physician or surgeon for negligence or malpractice, shall be commenced within one year next after the cause of action accrues, and not thereafter."

This section has been upheld by the Court of Appeals in three cases, recently, as follows:

Guess vs. Linton — 236 Ky. 87,

Roush vs. Wolfe — 243 Ky. 180,

Howard vs. Middlesboro Hospital, 242 Ky. 602.

Limitation does not run against a person under twenty-one years of age, or a married woman: that is, an infant may file suit at any time within a year after reaching the age of twenty-one, and a married woman may institute suit at any time within a year after the marriage relation ceases.

Inasmuch as the section above quoted provides that a suit for malpractice shall be commenced within a year next after the cause of action accrued, you may be interested in knowing when such a cause of action does accrue. This question is answered in Welch vs. L. C. & L. Railway Company, 6th. Ky. Opin. 330, within the court said:

"The fact that a plaintiff did not discover the extent of his injuries until several months after the day of injury, did not prevent the statue of limitation from running from the day of the injury."

To illustrate; suppose a surgeon leaves a gauze pack in the abdomen, and this pack is not discovered for two months afterwards, limitation begins to run, not from the time of the discovery of the gauze, but from the time the gauze was left in the abdomen.

In the twelve or fifteen cases that come under our observation each year, in round numbers, 50% are from bad results in fractures.

We have had:

3 from a broken needle being left in the arm.

4 from gauze in the abdomen.

4 from intravenous medication — where some of the solution got into the tissues outside of the vein.

Two doctors have been sued claiming that they brought on an abortion when the evidence showed that they merely gave an ordinary vaginal treatment.

We have been asked to defend all manner of cases that do not come within our province. For instance: A doctor is said to have made the statement that a certain patient did not have puerperal infection but had gonorrheal infection. He was accordingly sued for slander. This of course was not malpractice.

Another doctor in the mountains ran over a boy in his Ford and broke his leg. He felt that we should defend the suit.

There have been many cases in which delirious or mentally unbalanced patients have been hurt in hospitals or sanitaria. These of course are not within the scope of the Medico-Legal Division.

There are many other cases that range all the way from the utterly ridiculous to cases where the patient dies. Strange to say, there are a very few suits brought in case of death.

Each year in my annual report I have stressed the fact that the majority of cases, even after the suit is brought, are either forgotten or dropped from some cause or other, more than 30% are never heard from again. This is particularly true if the case can be postponed two or three times.

I suppose that it is human instinct that when a charge is brought against us that we naturally want to be vindicated, but it is not always best to go to the mat in every case. Time will lose a great many, if we will not be too anxious.

Most of us get excited and exhibit more or less fear when our skill is questioned and our reputation, which we have spent many tireless years in building, is attacked by a malpractice suit.

Abuse of the plaintiff or of the plaintiff's attorney is a sign of weakness and often proves detrimental to the defense.

I hope I will be pardoned in mentioning some of the short comings of which we are all more or less guilty at times. It is only by strengthening the places where we are weak that we can hope to put up a more successful defense in the future.

It has been very noticeable that when a doctor is sued he often has a disposition to employ too many lawyers. Our regular attorney in Louisville with a good lawyer in the Doctor's home town, is all that is needed. More attorneys than this confuse the issue and do not add anything to the case except to the cost. After an attorney is employed we should not try to handle our own case. Lay all the facts before the lawyers and then be guided by their advice.

So many doctors are reluctant to lay all the cards on the table, or state all the facts to me or to Mr. Curtis and in this way we are some times surprised and chagrined when the case comes to trial.

Many of the most prominent physicians and surgeons in the State have been the victims of a malpractice suit and none of us need to feel immune.

I have tried to show that usually a suit is not the result of lack of skill and consequently you need not hestitate to let us know that you have made a mistake in judgment or diagnosis or in obtaining a perfect result.

I wish to mention two cases that I have been through that will illustrate some of the points that I have tried to bring out. A man was struck on the head with a rock. A member of our society gave first aid. The patient later consulted another physician who x-rayed the head and found pieces of stone still in the wound. The first doctor was sued for malpractice and of course the court gave peremptory instructions for the defendant.

There was no x-ray available in the community of the first doctor—there was no lack of skill on his part and he did not neglect the case. The patient left him of his own accord and did not return for treatment.

One of the best surgeons in the State had a case of a child in which he gave Sodium Amytal—six grs., one-half hour before an operation. The child died on the table. A malpractice suit resulted. At the time that this occurred, Sodium Amytal had not been accepted by the council of pharmacy of the A. M. A. Hence it could not have been the usual practice of other physicians in the same locality. This suit was defended in conjunction with an Insurance Company and was very satisfactorily compromised for $600.00.

Our department has no money to pay damage claims or to effect a compromise. We do not want any. Holding down attorney's fees to a reasonable amount continues to be one of our major problems. We usually work in conjunction with the Insurance Company that carries the Doctor's policy. It is only by this method that we have sufficient funds to maintain our very valuable attorney.

Malpractice suits, like disease, are best handled by prevention. The good will of the public, esteem of our colleagues and a character above reproach are factors that may not prevent a malpractice suit in every case, but will go a long way toward a favorable verdict when once we are the victim of such an action.

## DISCUSSION

**Arthur T. McCormack**, Louisville: I know that every member of this Association has listened to this very remarkable paper with a great deal of interest. There is no subject that can be discussed before a medical organization that is of more importance. As might have been expected, Dr. Lukins has pitched the consideration of this important subject on the high plane that it deserves. The essential thing is that as a profession we shall continue to practice our art in its highest development, that we shall carefully consider the procedures with which we are familiar, and shall exercise in every case all of the precautions and do everything that the prudent and careful physician should do. But in addition to that, it is of the utmost importance that in all of these cases we keep such records, we have such knowledge of the surroundings, that we make clear to people our limitations, that we make clear to them frankly the prognosis of the case, the reason for doubt about prognosis, that we make clear to them in the cases of Colles' fracture, for example, or any other surgical or medical procedure, the possibility of serious difficulty and of results that are not satisfactory, that we make them understand the nature and methods of procedure.

We have in the classical example of Dr. McDowell in his relationship with Jane Crawford in that first ovariotomy, the model procedure for the surgeon or physician and for the patient in a new procedure. He carefully explained to her the nature of her disease and that the treatment was in the character of an experiment, never having been performed before within his knowledge or within the knowledge of the authorities with which he was able to consult. After he had explained to her the dangers and difficulties of the condition, she gladly consented, being informed as to the nature of the experiment that was to be performed on her body.

We have no right to perform an experiment on any person or to undertake any new procedure on any individual without such a frank exposition, and after such an exposition and with the consent of the patient we can then undertake newer procedures.

The important thing is that in all of these instances we carefully carry out the technical procedure, not merely of the care of the case itself, but the technical procedure of the protection of our relationship for future consideration by a judge and jury.

Medicine and all society have become more complicated. I don't think there is as much danger of doctors being sued right now as there was a few years ago. We looked more prosperous a few years ago, whether we were or not, but I don't think anybody is going to sue many of us now with the idea of getting anything except vindication.

I know everybody here feels grateful to Dr. Lukins. I think it would be absolutely impossible for me to tell you the time and energy and the study and the wisdom that he has applied to your interest in these matters. I hope when his contribution of his is published in the Journal, you will save that Journal. In fact, every member ought to save every Journal. There are sources of reference in every single one of them that you will find of value. Save this Journal particularly and get your lawyer friends to read it; get your circuit judge and the appellate judge in your district to read it, that they may have knowledge of these important and complicated questions that come before us that they know little about unless we teach them. That applies to public officials generally. We ought to educate and continue to educate the members of the legislature from our districts as to the importance of medicine, preventive medicine, and the questions for which we assume responsibility. We ought to talk to our county judges and our magistrates who are our friends and patients and have the official public as well as the public generally informed as to the high plane on which we are giving service to them, that we may have that command of public opinion and that confidence of the people that we can only secure when they know the purity of our motives and our desire to render them excellence in service.

**A. D. Willmoth**, Louisville: There was a time when I began practicing medicine when law suits were unheard of. Unfortunately at the present time they are rather frequent.

There are some important points relative to our own work which should be constantly kept in mind that the committee and the attorneys representing us and the Association may have available, should such suits be filed. One is, as has been emphasized by the last speaker, complete records. I think most of us are able, at least to sense a suspicion that the patient we are handling is looking for trouble. I think it was Monday I told a woman frankly, in my office that I wouldn't treat her for any price. She was looking for trouble, and I think I was smart enough to know it, and told her that I wouldn't treat her and that my service couldn't be had by her. I am sure she was looking for trouble, either with me or the doctor who had previously treated her.

If you are treating a fracture or any case in which you are suspicious, keep written dates and notations of the case as it comes to your office, that you may have such available information for the attorneys if a suit is filed.

I happen to be fortunate or unfortunate enough to testify in a number of these cases, and about a year ago we were very much chagrined that the doctor and his technician swore to two different things, a lack of notation as to what happened on certain days in the office leading to the trouble in that case, which was finally compromised.

In the selection of attorneys, I would suggest that you leave that to our legal committee. An attorney that you would select to file a suit against a city to carry to the Supreme Court of the United States for the purpose of raising a street car fare, for instance, or getting a new franchise for a lighting system, would not be the attorney that you should select to defend you in a damage suit. Why? Because he is wholly unfamiliar with medicine and medical terms and with the management of such cases, even though he be your best friend. Select the man in your town to co-operate with our state attorney, Mr. Curtis, who is a man most familiar with accident work, who defends insurance companies against accidents, because he has familiarized himself with medical terms, with complications, with court decisions, he is far better able to defend you before the court than your best friend who happens to be one of the attorneys who doesn't deal with any cases except perhaps large railroad cases or corporations; he isn't the type to defend you; he isn't prepared for it, any more than the man who has never studied medicine would be prepared to practice medicine.

**George P. Sprague**, Lexington: Gentlemen, there are two points that the essayist in his wonderfully fine paper, and the discussants, have not mentioned. One of them is the litiguous state of mind that a great many people have. I conduct a sanitarium, and I want to assure you that you can get used to lawsuits. I have had one or two lawsuits on my hands for many years, and you finally get so you don't mind them.

There are people outside of sanitariums that are difficult to get along with. Perhaps you know of a farm neighbor who is watching you all the time to see that you don't let the water run onto his farm, that you don't attach your fence to his, and if you do, immediately he threatens to sue you. In the same way, outside of hospitals and sanitariums there are people who later become your patients who are not going to wait to bring a suit against you because you have done something wrong, but who are instinctively thinking that you have done something wrong even when you are right. There are also a great many patients who have mental disturbance that is not recognized. For instance, one of my cases that has been hanging fire now for seven or eight years, is that of a circuit judge who is constantly on his bench, drawing his salary, but who has sued me because I allowed him to break a glass on a radiator and gash his throat and thereby to quote him "become helplessly and hopelessly incurable from disease of the muscles and nerves" of his neck.

**Leon L. Solomon**, Louisville: Like others, who have spoken this morning, I have been subjected to suit for malpractice, though wholly undeserved, I humbly state. Some years ago, where I had rendered no service, except to state that I was leaving the city at an early hour, must therefore decline to accept the case, but was willing to recommend the services of a nearby physician, I was afterwards sued because I failed to discover that the woman had a broken hip. I did not examine her, had not even gotten her history. In this same case, some months after my return to the city, I was again summoned, and again declined to accept the responsibility of rendering service to this woman. Lying on the floor, indicating by her posture, that she likely had a fractured hip joint, I asked to be excused from attending her, though I recommended a surgeon. The three of us were sued—Dr. Sidney Meyers for $5,000, Dr. J. G. Sherrill for $15,000 and mysef in the sum of $25,000. At the time, as much as $5,000 might have been obtained from us collectively—surely not $45,000. The case against me was prosecuted first, the Judge giving peremptory instructions in my favor. The other two cases were never called.

The recital of a recent case, in which it was permitted me to take a part, will likely be of interest to this meeting. A group of attorneys accepted employment against two of our fellow practitioners. Because the law of limitation would permit of expiration the following day suit was filed. Thereafter the attorneys pursued what I thought was a remarkable course. Calling at my office they requested that I would express opinion whether the lady was justified in bringing suit. The seriousness of their request was at once apparent. In the event I found justification, I must appear as a witness against brother physicians. It occurred to me that I had an obligation, which I must impartially discharge. Dr. Lukins has just stated the purpose of the work of his committee, "to defend those suits which have no basis." In agreeing to undertake the work, I specified two conditions, namely, (1) Provided I found the subject entitled to damage, I must be permitted to negotiate with the physician, in order to effect, if possible, settlement out of court. (2) In the event the examination disclosed that the subject was not entitled to recover, suit must be withdrawn. With these stipulations agreed upon, the lady was carefully examined, consultations were held with the accused physicians, and Dr. Lukins' services were sought. With admirable co operation on the part of all concerned facts were estabished justifying the filing of report that the woman was not entitled to recovery.

**L. C. Redmon**, Lexington: I am the man that was sued for producing an abortion by a vaginal examination. This woman aborted a month after I had examined her in my office, and accused me of producing the abortion by a simple speculum examination.

They had been in several towns before they landed in Lexington. They filed suit, naming the doctor in a nearby town who had attended her at the time of her abortion as a witness for the plaintiff. We interviewed him and he said to leave it as it was, that he would come and testify for the plaintiff, that is, he would like to get on the stand. When the case came to trial (they had offered a compromise for $100 but they went to trial just the same) and I spent the most strenuous ten or twelve hours of my life. They put this doctor on the stand and the lawyer for the plaintiff opened up the case, asking him a question and he proceeded to talk for ten minutes in spite of the objections of the plaintiff's attorney, told the whole story, and the judge gave peremptory instructions for me.

**G. G. Thornton**, Lebanon: The essayist has covered the ground as squarely and as fairly as it is possible for anyone to do, but one important point has been left out and has not been mentioned by the discussants.

When you go before a jury composed of laymen, and I say this with the very kindest respect for the feeling of the layman toward the doctor, if that fellow is a poor devil they sympathize with him instead of the doctor. In my case that was true. The jury brought in a verdict of one cent.

**J. B. Lukins**: I want to introduce to you your best friend. Mr. Curtis has had a very trying ordeal. He has been in court all of two days and up to this very minute. I want him to stand up here and greet you and let you know what a good-looking fellow he is. (Applause).

**L. R. Curtis**: I wanted to get here in time this morning to hear once again this splendid paper that Dr. Lukins has read to you. I have read it and I know it contains many valuable suggestions and much information that will be helpful to you in your practice as you go along.

It is true that I have been in court for two days and until a few moments ago when the court gave peremptory instructions for my client and I grabbed a taxicab and got here just as soon as I could.

I want to agree with the doctor who spoke a few moments ago, when I say that whenever a malpractice suit goes to the jury there is always danger, because you find juries who naturally sympathize with those who have been injured and with those who may have a permanent injury. Some juries figure: If the result is bad then we should assess damages against the doctor. We try, therefore, in every instance to prepare our case so that we will be able to convince the judge that no negligence has been shown on the part of the doctor and for the judge to give a peremptory instruction in our favor.

I am glad to report that in the great majority of cases not only in the City of Louisville, but in outlying districts in the state we have been able to so convince the judge, and if not the circuit judge, then the court of appeals at Frankfort, that no negligence was shown on the part of the physician and that it was proper that a peremptory instruction should have been given.

I am familiar with the case that Dr. Solomon spoke about to you. In that case the lawyer for the plaintiff did refer the case to Dr. Solomon, and the doctor, after learning all of the facts, the facts from the plaintiff as well as the facts from the defendant, reported to the plaintiff's lawyer that there was no case there and that case was dropped, not dismissed because they are after us to give them $75 to pay for the court costs and give the lawyer a little something, but we remember that memorable statement made by the great statesman in days gone by: Millions for defense, but not one cent for tribute. That is what we are telling them today. We simply can't compromise these cases, even on a basis of their nuisance value, because every time we compromise a case it puts a premium upon the filing of other cases and it encourages the filing of other cases.

One doctor asked what the law is when you accept employment and then want to get out of the case. That is a dangerous proposition. You really should not get out unless you do so with the consent of or with the agreement of your client, because they may come into court later on and say, "We employed him, and he neglected our case and ran out on us." If you do get out, have a thorough understanding with your client that you are getting out, tell your patient why, and have witnesses there by whom you can prove that you got out with the consent and the permission of your client.

I want to say in conclusion that my heart is in the defense of malpractice suits. I have had very few suits and I have heard of very few suits where they had any foundation when it came to justice and law and what was right and what was wrong. The doctors, I have found, do their best. They use the skill and care that is ordinarily exercised among doctors and physicians in their community, and I have found very few suits that were justly and rightly filed. I say again that when I go into a malpractice suit I go into that suit with my whole heart. I know much depends upon it, and I give to the litigation every thing that is in me.

**J. B. Lukins**, (in closing): I cannot sit down without expressing our gratitude to the noble-hearted members of this profession all over the state who have done this very thing. I could not undertake to name them all, but when I look around here I see Dr. Charles Vance, Dr. Hendon, Dr. Virgil Simpson, Dr. Solomon, Dr. Willmoth, Dr. Strickler, and dozens of others all over the state that have willingly and unstintingly given of their time and of their wisdom to help us out in these cases, and that, together with Mr. Curtis' great work is what accounts for our success.

## REPORT OF CASES*

S. G. DABNEY, M. D.

Louisville.

Case I. Patient, a woman, complained of intense pain in her left ear and left side of the throat, with great difficulty in swallowing or opening her mouth. I could find nothing in the external appearance of the throat or neck to explain the trouble and advised her to have her teeth examined. She told me they had all been out for years. Nevertheless, she had an x-ray picture made by her dentist who discovered and removed the large root of the first molar in the left upper jaw, and the patient was immediately relieved of her symptoms.

Case II. This case did not terminate so favorably. Through the kindness of Dr. Peabody I saw this man, in the early sixties, complaining of intense pain in the right cheek and along the right side of the nose. He was formerly a physician and thought he had antrum trouble, and Dr. Peabody had punctured the antrum and washed it out, and the experience had been so disagreeable that he was very much averse to any further operative procedure. I expressed the opinion that the trouble was not in the antrum and, although his teeth had also been out for years, advised him to see a dentist. He did so and again x-rays revealed the presence of an old root. In this case, however, extraction of the root did not afford relief and I sent him to Dr. Spurling who confirmed my own opinion that there was no antrum infection, and that his trouble was probably due to disease of the trifacial nerve.

I report these cases principally because of the fact that, with apparently the same condition in both, a fragment of root remaining after the extraction of the teeth, one was relieved by the removal of the root while the other was not. In most of these cases, relief has been immediate following the extraction of the offending root, but I recall a paper on the subject by one of my younger colleagues in which he said that the pain in such a case might last for three weeks or three months.

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*Read before the Medico-Chirurgical Society, Louisville.

# HYDROPHOBIA*

G. G. Thornton, M. D.

Lebanon.

The report of two cases of Hydrophobia in the January number, by Dr. D. S. Robertson, and the fact the practitioner of medicine so seldom sees a case of this terrible disease in the human subject, together with the fact that his cases, (if they were cases of Hydrophobia) differed so much from the only case I ever saw, prompts me to report the following case which I feel will be of interest to your readers. I am not saying that his cases were not hydrophobia, because I suppose it may be like many other diseases and present itself in varied forms. Whatever they were they were interesting and he is to be congratulated on the outcome.

Here's my case: a white man about 20 years of age, came to me on Saturday afternoon wanting something for his throat. His pulse and temperature were normal and when I looked at his throat I told him that I could not see anything the matter with his throat, that it did not seem to be sore. He said no, it wasn't sore but he had such a choking when he swallowed, and when I asked him if it was solid food or liquids that hurt him he answered that one gave him as much trouble as the other. Then I wanted to see him swallow and handed him a glass of water and it would be hard to forget the expression on his face as he held it before him and looked at it for an instant as though dreading to take some awful dose of medicine and then hastily put it to his mouth and gulped it down with seemingly much distress.

It was a striking picture. I then asked how long he had been suffering this way and he said since the day before and it came on when he took a dose of salts and he thought the salts did it. I then inquired about his appetite and he said it had been good up to the day before and that he had been sleeping well up to the night before, but later I found out from his sister with whom he lived that this was not correct and that he had been restless and eating very little for about three days before he came to see me. I then inquired if he had been bitten at anytime by a dog—I did not say mad dog, and he said that he had not. Well here was a puzzling case and I thought of Pseudohydrophobia, but could hardly believe it was that.

His mental condition seemed clear and I told him that I felt anxious about his case and gave him some stout doses of nerve sedatives and told him that if he were not decidedly better to let me know in the morning. But in the morning I heard nothing and hence supposed he was better.

On Monday morning two days later his father came for me to go see him with the statement that he had been wild on Saturday night and that he had been up all during the night before and that he claimed that some one was around the house trying to steal something and that he had shot one or two of them and that when he looked in the mirror he broke it with his fist thinking he saw one of the thieves and that he was cross with his mother and threatening violence to all the family. When I arrived at his home, he was up and came when called into the room and recognized me but had a weary dazed look on his face. I had them bring in a pan of water and told him to wash his face and when he started to put his hands into the water, but before they touched it a shiver of terrific force came over him and I was thoroughly convinced of his trouble.

I put him to bed and gave him a hypodermic of morphia and hyoscine and had another doctor see him with me in about two hours. Our diagnosis was positive and prognosis very unfavorable. He died within the next twenty-four hours. Did he try to bite any one? No. Did he "slobber"? No. He would throw himself from side to side of the bed and when he struck his head against anything he would show that it gave him pain and he had to be restrained to keep from hurting himself or others. He did not seem to have an excessive amount of saliva but he was continually trying to spit. Why does a mad dog slobber? Because he cannot spit. Why does the mad dog bite? Is it because he has over powering desire to bite? I think not, but it is because he is abnormally cross and that is his principal way of fighting. The mad man shoots or hits with his fists and spits and the dog bites or slobbers.

To make this complete I should say that this boy had had a dog to die of hydrophobia three months prior to this and he had been chained and this boy handled the chain with which he had been led, and probably had an infection in that way.

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When we say that a good citizen is a liberally educated man, we imply that he has the virtues of such a man. He has an informed and critical mind, he is capable of reaching intelligent social convictions, and he has sufficient firmness of character to act upon his convictions. It is the function of education to develop individuals of such mind and character, to the end that we may possess a selfreliant citizenship, trained to independence of thought and action.—Dr. Robert G. Sproul, President, University of California.

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*Read before the Marion County Medical Society.

# THE McWHORTER INCISION FOR EXPOSING THE KIDNEY*

Malcom Thompson, M. D., F. A. C. S.

Louisville.

There are two routes for exposing the kidney, the intraperitoneal and the extraperitoneal.

Heretofore it has been necessary to remove most massive enlargements of the kidney through the intraperitoneal incision as the extraperitoneal did not offer sufficient exposure. Entering the peritoneal cavity tremendously increased the risk for obvious reasons. The most commonly employed incision for intraperitoneal exposure has been that of Langenbuch which is a longitudinal incision at the lateral edge of the rectus muscle. The Rutherford Morrison incision is the Langenbuch plus a transverse section back to the centre of the iliocostal space.

The extraperitoneal incisions are also called lumbar incisions as they are made posteriorly in the space between the ribs and the iliac crest. There are many varieties of lumbar incisions, so many that I shall not attempt to enumerate all of them. The better known ones are the vertical incision of Edebohls and Simon along the border of the sacrospinalis, the oblique incision of Bergmann following the twelfth rib toward Poupart's ligament, and the hockey-stick incision of W. J. Mayo which has a vertical limb along the anterior margin of the sacrospinalis extending from above the twelfth rib to within an inch of the iliac crest from which it is continued forward along the iliac crest. Pean has described a transverse incision but it is a low one in that it falls below the tip of the last rib.

The disadvantages of the usual lumbar incisions are that sufficient exposure is not obtained to easily remove large kidneys and tumors and there is often some difficulty in ligating the pedicle. Through these incisions to reach the pedicle it is usually necessary to first deliver the kidney which is a hazardous procedure when the patient is fat and the pedicle is short. The difficulties just mentioned are illustrated by the fact that it is often necessary to forego ligating the pedicle and to resort to leaving the clamps for seventy-two hours. The pleura too is not infrequently injured.

Dr. Golder McWhorter of Chicago has used and described what he calls a high transverse extraperitoneal incision for exposing the kidney. Dr. McWhorter's article appeared in the Surgical Clinics of North America for February 1932 and in it he reports having removed a large malignant tumor of the kidney through this incision. He has used it in other cases and considers it especially useful where considerable exposure is needed.

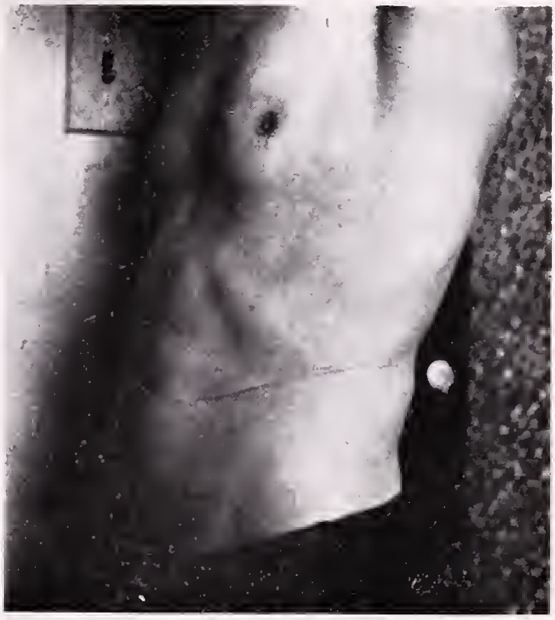

Fig. 1 Anterior portion of incision.

The incision begins about two inches above the umbilicus at the edge of the rectus muscle and extends horizontally to the edge of the sacrospinalis muscle (O. T. erector spinae). The skin, the external oblique, latissimus dorsi, internal oblique, and serratus posticus inferior muscles are divided. The tip of the twelfth rib will be found one and one-half to two inches below the incision and when the scalpel reaches the rib it is directed around the tip and back to the original level of the incision. This greatly liberates the rib which permits it to be retracted upward. If more exposure is desired attachments of the inferior border of the rib can be divided still higher which will permit of greater retraction. It is not necessary to divide the ligamentum costo-lumbalis lateralis (O. T. external arcuate ligament) which protects the pleura from injury. The fibres of the transversalis are separated, the transversalis and lumbar fasciae and quadratus lumborum muscle are divided which expose the perirenal fat and the kidney. By separating the fibres of the transversalis injury to the twelfth intercostal nerve and vessels can be easily avoided and with reasonable care the ilio-hypogastric and ilio-inguinal nerves can be avoided at the posterior angle of the incision. The kidney can then be pushed anteriorly and the pedicle easily reached from the posterior side without first delivering the kidney. After removing the kidney the wound is sutured in layers. If drainage is desired the tube may be brought out at the posterior angle which provides dependent drainage.

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*Read before the Jefferson County Medical Society,

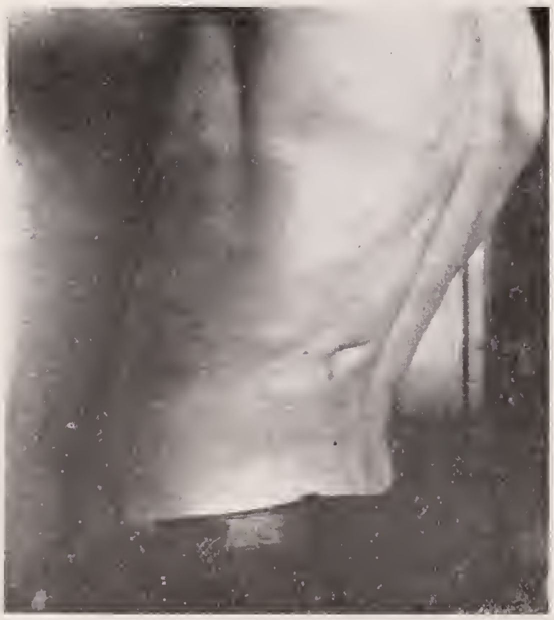

Fig. II Posterior portion of incision. (Depressed area is where drainage was inserted.)

The history of the patient which I am presenting this evening will be given only briefly. The idea in presenting him, is to call your attention to the McWhorter incision. Mr. L. F. was admitted to St. Joseph's Infirmary February 25, 1932. For eighteen months he had had pain in the upper left quadrant of his abdomen and in the left lumbar region. In October, 1930, Dr. D. Y. Keith had examined him and found large stones in his left kidney. We also found these stones and with indigo carmine differential function test there was no output from his left kidney at the end of thirty minutes. His right kidney had normal function. Nephrectomy was performed using the McWhorter incision. The kidney was two and one-half to three times larger than normal and moderately adherent. The pedicle was ligated without disturbing the kidney except to retract it forward. The exposure was ample due to the retraction upward of the twelfth rib and the use of the kidney elevator under the opposite loin causing the edges of the wound to be pulled widely apart. The post operative convalescence was without complications.

The entire operation was so quickly and easily performed that I considered it worthwhile to recommend this incision as probably superior to the other more widely used ones. Its distinguishing features are that the pedicle may be reached without difficulty and without first delivering the kidney, the exposure is adequate, and there is little or no danger of injuring the pleura or other important organs.

## DISCUSSION

**Jno. R. Wathen:** I think this is a very interesting case and the Doctor should be congratulated. I have seen this method used for malignancy of the kidney with fairly good results, but when there is a large kidney filled with stones and many adhesions I would prefer the operation as done by Dr. Feedorff of Russia, which was called attention to by Dr. W. J. Mayo. He slits the capsule and separates it from the kidney, leaving the capsule attached to the intestine, and in this way reaches the pedicle; and it is a great contribution to modern surgery of the kidney. I have done over eighteen of these operations with success and by all means recommend the method.

**George A. Hendon:** In this connection it might be of interest to note that the removal of a kidney can always be rendered easy by dividing the twelfth rib close to its vertebral attachment. In all the nephrectomies I have done this procedure has been adopted. It renders easy access to the upper pole of the kidney and in no case have I wounded the pleura. The longitudinal incision possesses the advantage of preserving the integrity of muscles, nerves and blood vessels which is sacrificed in the horizontal approach. I have never used the method under discussion, but the fact is quite obvious that it will expose the kidney or anything else one might have inside of him.

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**Environmental Temperature and Blood Sugar of Rat.**—According to Schear, the concentration of sugar in the blood of the albino rat varies materially as the environmental temperature changes. These two factors stand in an inverse relation to each other, as the temperature is lowered the blood sugar level rises; when the temperature is high the level of sugar is lowered. These changes obtain even within temperature limits which have no effect on the body temperature. The changes appear to be permanent, no readjustments occurring within three weeks, and they are probably in some way related to the metabolic readjustments necessary to meet the requirements of the animal under the changed conditions. The consumption of food is much greater when the animals are subjected to the cold enviornment, while the water used is less; while on the other hand, under abnormally warm conditions the consumption of food is much less and that of water much greater. It appears that under the low temperature the increased heat requirement is met by the mobilization of a larger quantity of sugar and that this increased metabolic action in the various tissues is accompanied by a high sugar level. On the other hand, under the high temperature the heat requirements of the body are greatly reduced and less sugar is mobilized and a lower level is maintained.

# RELATION OF EAR, NOSE AND THROAT TO GENERAL INFECTIOUS DISEASE*

A. L. Bass, M. D.

Louisville.

It is well known and generally recognized that of all primary foci responsible for secondary general infection in the body, those located in the mouth, throat and nose are first in location as to the cause of secondary general disease. Primary foci are responsible for all secondary diseases of an infectious nature.

The number of affections that have an origin from some foci in the head are many and include some of the most distressing and serious of human maladies. The severity of the affections vary from ailments that are but transient and free from danger to diseases with great chronicity, prolonged suffering, marked deformity and serious and probably fatal involvement of vital parts.

Prominent among these are affections of the heart, kidney, gall bladder, stomach, intestinal tract, joints, muscles, lymph nodes, nerves and eyes. Mortality statistics put death from heart disease more often than any other affection; and leading internists believe that cardiac affliction is secondary to some foci often in the head, chiefly the tonsils.

Professor Davis of University of Illinois states there are over two and a half million people in the United States who have heart diseases as sequelae to streptococci infection in the tonsil. Kolmer estimates that of the total number of deaths recorded eighty to ninety per cent are due to infection which originated primarily in some local focus.

Eastman concurs in this view. Crowe asserts that thousands of people suffer from general disability as a result of focal infections.

Were it possible to prevent establishment of primary foci in the head a great number of ills which the human system is afflicted would be done away with. The ability of the human system to resist bacterial invasion depends upon several factors. When we come into the world we are practically sterile or germ free, and would remain so unless subjected to contamination from outside sources. The locality, time, present state of the local environment are factors to be considered in determining what hostile elements the body will have to contend with, as well as the ability of the individual to resist the invasion. Bacteria of different degrees of virulence constantly inhabit the mucosa and skin and it is only when nature's protection is broken down that infection takes place. A mild infection gives the body a chance to build up an immunity to the specific organism as well as enable the system to withstand the invasion of other bacteria.

It is a matter of record that a large percentage of Eskimos brought down to the Chicago World Fair died with pneumonia before they could be returned to their native heath. They live in a practically germ free atmosphere. During the world war it is a well known fact that there was a much higher mortality among the soldiers from the rural district than the city. The country boy looked healthier, but the town boy had had most of the acute infectious and contagious diseases, existing in a heavy laden germ atmosphere, which in turn produced in his body antibodies rendering him much more immune and more able to resist bacterial invasion. The ability of the bacteria to survive and failure to establish a focus of infection after entering the tissues may depend upon the number of bacteria, virulence and the resistance of the invaded host.

Bacteria are not capable of invading the normal integument or mucosa. Only when the surface epithelium of either is broken, an infection takes place.

Von Klecki and Wood have demonstrated that some types of bacteria have penetrated uninjured epithelial surfaces; but this has been explained by the surface cells being physiologically weakened and therefore abnormal. Infection may take place through the surface on any part of the anatomy, but certain areas are more liable. The naso-pharyngeal mucosa is constantly exposed to irritation by foreign material through respiration, sudden atmospheric changes, and the ever present bacterial flora ready to break through the surface epithelium at every opportunity afforded. Should the bacteria get through the surface epithelium nature produces an increase of leucocytes and lymphocytes at the area affected, where in a great many instances the infection is stopped by nature's efforts; detroying the invading host by phagocytosis. Should the infection be severe enough, there will be a congestion, infiltration and localization of the area, or walling off, which will prevent a further spread. The ability of an individual to withstand bacterial invasion varies greatly. One may have the power to resist infection, even in severe epidemics, another may be in such a state of vitality sufficient to resist infection to a local standpoint, while another whose resistance is way below par, being exposed to the same infecting agent, may suffer both local and systemically.

Focal infection may be walled off for sometime and the system being well fortified, there will be no manifestation of its presence and if there are any toxins liberated at all they are immediately absorbed. On the contrary when resistance is lower, this focus, which has been more or less dormant for some time, will manifest its presence by producing some secondary lesion causing dire results or irreparable damage, e. g. a focus in the tonsil or an abscessed tooth producing a secondary lesion of heart, lungs, kidneys, etc., too numerous to mention. As many as seventy affections have been mentioned attributable to focal lesions. The spread of infection is either through the blood stream or lymphatic system. Sometimes through both channels in the same patient; the blood stream being the more frequent route. The secondary involvement distant to the focus is practically always of hematogenous dissemination, while areas close to the focus are lymphogenous. The enlarged lymph glands around the head and neck are nearly always secondary to an infection in the ear, nose, sinuses, teeth, tonsils or pharynx. The lymph nodes act as forts against spread of bacterial invasion. One node may have enough vitality to withstand the amount of infection, if not the defensive power of the next node in line will be brought into play and so on down the chain according to severity or toxicity of the infecting agent.

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*Read before the Kentucky State Medical Association at Louisville, October 3-6, 1932.

The lymph gland, (called tonsil gland) at angle of inferior maxilla is enlarged in the majority of instances of either acute or chronic tonsillar infection. I am satisfied that there is many a blood stream infection never manifested but slightly, or not at all; because the organism present has but slight toxicity, in small numbers and the patient's defensive mechanism is of such a high efficiency the bacteria present are destroyed before they have a chance to become of a serious nature.

Rosenow believes from animal experimentation, that bacteria change their degree of toxicity, and certain bacteria have an affinity for certain tissues. Billings from a clinical standpoint agrees with Rosenow. Kolmer thinks this has been over emphasized. Wirth's experience in inoculation of 141 rabbits did not bear out Rosenow's findings.

Since the majority of foci producing secondary infection and systemic disease are located in the head it behooves us to make a thorough search for foci in the head in all cases of systemic derangement of an infectious nature.

Having located one focus, one should continue on with a thorough examination for all possible foci; for many times there is more than one. The removal of one focus without the removal of all foci will result in failure to relieve the patient. In most instances it is not difficult to determine the location or presence of the primary lesion; whether it be teeth, tonsils, sinuses or ear; while at times it is very difficult to determine the focus. Many times after the secondary condition has been established for sometime, the primary lesion will be healed or quiescent. There may not be any evidence of a local lesion at all producing the secondary condition. Such as teeth with apical abscess or without. They may be devitalized with infection and x-ray does not show involvement. I could cite cases where removal of such teeth relieved symptoms but time will not permit.

Sometimes the secondary infection becomes a disease entity within itself; the primary focus having been eradicated or healed; and the secondary focus, whether it be in the lymph node, kidney, heart or joint, will continue as a source of infection in the system as did the original focus. In difficult and obscure cases our examination should be thorough and inclusive; sometimes requiring the aid of the internist, otolaryngologist, dentist, roentgenologist and laboratory before a final decision can be made.

A careful and complete history is important. Only recently I saw a patient, age 42, with history that he couldn't see well for four weeks; examination showed an optic neuritis. I could find no foci of infection. Laboratory work, such as blood count, urinalysis and Wassermann were negative. He was sent to a neurologist who could locate no evidence of intracranial abnormality and he suggested a ventriculogram which was done with negative findings. About the end of the second week my associate got the information from him that he was quite a tobacco user. Lessening the use of tobacco considerably, his papillitis cleared up in a short time.

A few words relative to treatment of foci in the head. In all instances where it is possible, complete eradication of all source of infection is advisable, whether it be one or more foci; located in the teeth, tonsils, paranasal sinuses or ear.

Kaiser, in a study of 4,400 children over a ten year period, concludes that certain infections have a close relationship to the presence or absence of tonsils and adenoids. Other infections are not influenced favorably or unfavorably by their presence or absence. A few infections seem definitely more common in the absence of tonsils. The removal of tonsils and adenoids lessens the incidence of colds in the head, sore throat, cervical adenitis, otitis media, rheumatic disease, diphtheria, scarlet fever, nephritis, and dental infections. Chorea, measles, laryngitis, tuberculosis and malnutrition were influenced favorably to a slight degree or not at all. The removal of tonsils and adenoids influenced unfavorably the incidence of bronchitis, pneumonia and sinusitis.

In a study of the role of chronic and subacute infections in diabetic children, Lierle and Potter found chronic infected faucial and pharyngeal tonsils in 55 of 63 cases. Tonsils and adenoids were removed in 50 of these cases. A definite increase in tolerance for carbohydrates within a year following operation was shown in 70 per cent of cases. The statistics gathered and reported as to the benefit following removal of foci are unreliable, because one and not all the foci have been removed and what operations were performed were incomplete. Tonsil stumps were left, infected teeth and roots remained, other foci have been overlooked.

Brock states that of 80 cases of tonsillectomy performed for arthritis, forty-two still had infected stumps.

Dick states the result of his study of statistics from operations for the removal of primary foci for the cure of general disease are not satisfactory, because tonsil stumps remain, tooth roots are left and infected sinuses are overlooked. He found tonsil stumps left in 290 out of 405 operated cases. Dick finds in some cases more infectious material in tonsil stumps and patient having more trouble than prior to operation.

Payson Clark makes a similar statement and reports a series of 143 cases in which 59 had badly infected stumps.

Crowe in a study of results in 1,000 cases, states that the cause of failure to relieve the secondary infection in most instances was due to the removal of one focus when there was more than one present.

Failure to relieve the secondary condition after all primary foci are removed may be due to the fact that the secondary focus has been well established and it will continue to liberate the toxins and do damage as did the primary focus. The removal of the primary focus will only serve to lessen the burden on the system.

After secondary lesions are well established and permanent pathologic changes have taken place and it is impossible or unwise to remove all foci by surgical procedure other means of treatment must be instituted. On account of the infection their vitality is lowered and their physical condition is easily disturbed. Proper hygiene, environment, food and sunshine are important factors. In cardiac complications rest in bed is essential.

Conclusion: Oto-laryngology is a useful department in the whole field of general medicine. It is a branch of the tree, and the tree bears fruit best when its branches are fully developed.

## DISCUSSION

**Gaylord C. Hall**, Louisville: The conception of focal infections I believe to be one of the great advances in modern medicine. It has practically eliminated "idiopathic" from our language and has placed our ideas of pathology on a firm basis. The search for hidden foci in various parts of the body is at times sufficiently difficult to tax the resources of the most astute diagnostician.

At first the sources in the head received most of the attention, and they still stand at the forefront of offenders, but we must not forget that there are other parts of the body that can be responsible for these foci; the diseased prostate, the chronic gall bladder and appendix, to mention only the more common ones.

Dr. Bass mentions in his paper that a careful history should be taken and a thorough search instituted for all foci, since in most cases all should be eradicated or we fail to relieve the patient. This unfortunately brings us up sharply to the weakness of our attack. No one can say positively in a case showing two or more foci which one of these is the most important. We have to proceed by a process of elimination, being guided by our clinical experience, the history of the case, and a careful evaluation of the intensity of the various foci, bearing in mind that about 80 per cent of these foci arise from the head. For instance, in a case showing infected teeth, infected tonsils, and a history of chronic appendix, none of the three showing any predominance, I would advise, first, the removal of the bad teeth, next the removal of the diseased tonsils after a suitable interval, and finally if the symptoms did not clear, the removal of the appendix. If, however, the appendix was showing an activity in excess of the other two factors, I think that this should be first removed. The handling of these cases resolves itself into a conference between the several men whose fields are involved and a course of action instituted after a careful consideration of all the factors.

It is unfortunate that we cannot be more definite in regard to these foci; until the time comes when we can positively say which factor is the most important there will be something to be learned about the handling of these patients. It must not be concluded from this that what we do is simply a shot in the dark, for while we fall short of scientific exactness, never-the-less a careful study of the case will give us a pretty definite idea which focus is contributing most of the damage.

Before leaving this phase of the subject may I stress one point. A definite interval should elapse between operations to allow the patient to build up a proper resistance. Much harm has been done by multiple operations at one sitting or by allowing too short an interval between.

If I remember rightly, Dr. Horine stated to me some time ago that 50 per cent of cases showing involvement of the heart were traceable to throat infection. This being the case, it seems foolish to allow tonsils that are suspicious to remain in the throat in view of the hazard involved. These cases may run along for months or years apparently doing little damage, and the patient is suddenly confronted with a serious involvement of the heart or kidneys that may make any operative interference exceedingly hazardous and that may cripple the patient even though the offending tonsils are later removed.

In this category is the nasopharynx. We all recognize how difficult it is to thoroughly clean out all diseased tissue in this region, and I am fully convinced that remnants of lymphoid tissue in the nasopharynx retain infection and this infection is absorbed into the general circulation. A careful study of this region is an absolute necessity, especially in those cases where, the tonsils having been clearly removed, there remain symptoms of absorption that cannot be otherwise accounted for. I am certain that I have seen many cases who manifested continued pain in muscles and joints especially, that were due to absorption from a small amount of infected lymphoid tissue in the nasopharynx, which cleared up after its removal.

Affections of the eye, especially of the uveal tract, and sometimes the cornea, secondary to infections in the head are quite common. In these cases I would first investigate the teeth and have these put in good condition. Next in importance, in my opinion, comes the nasal accessory sinuses and these should be carefully studied to find the focus. I am quite certain that an appreciable percentage of these cases arise in infections of the sinuses, though I cannot subscribe to the enthusiasm of those men who explain so many of these cases on that basis when there is so little pathology apparent in the nose that even the pathologists find it difficult to discover. I do not believe it necessary to have pus pouring out of the nose before we make a diagnosis of sinus disease. I think hyperplastic conditions in the nose are quite as important as the purely purulent variety. Careful study of the case, shrinking the mucous membrane of the nose followed by suction, x-ray study of the sinuses with injection of opaque oil if necessary, should certainly enable us to make a diagnosis if the trouble be present. Operating on the sinus on suspicion when there is no other explanation to be found may be justifiable in an occasional case. It is certainly not to be resorted to often.

The secondary foci, of which Dr. Bass speaks, those accompanied by activities in the joints or heart, may be equally potent with the primary foci and this may defeat our efforts in clearing up the case. It is an additional incentive for us to be on the lookout for the primary conditions and eradicate these before the secondary conditions have developed.

**A. L. Bass,** (in closing): Dr. Hall gave me a thought in the matter of treatment for removing multiple foci, that is if you have a uveal tract condition and you have more than one foci, like teeth and tonsils, don't procrastinate in having the teeth out and waiting a while and having the tonsils out, but remove all foci soon as possible. I have had that regret by having other foci go on and do considerable damage, whereas if I had gone ahead and removed all foci the patient would have received the benefit immediately and cleared up much quicker.

## TUMORS OF THE BREAST*

Louis Frank, M. D.

Louisville.

The specimens presented tonight represent a group of cases of tumors of the breast which have come under our observation within a comparatively short period of time.

The first is a specimen of fibro-adenoma of the breast occurring in a male, aged 35 years, which is of sufficiently infrequent occurrence to render it interesting. We frequently find this type of tumor in the female breast; in fact, while we know that ninety per cent of tumors of the female breast are malignant, the remaining ten per cent is, in large measure, composed of this type of fibro-adenoma.

We are also presenting tonight as a specimen of this type of tumor one removed from the breast of a comparatively young woman; and I would say, *en passant,* that the prompt removal of such tumors is always indicated.

The third specimen or tumor was taken from a married woman upon whom we had operated in 1921 for a diffuse fibro-cystic disease—sometimes called Schimmelbusch's disease—involving both breasts. At that time because of the discomfort she was suffering and in view of her age, we thought it best to remove them, which was done. She returned eleven years later with a round, smooth, perfectly movable growth in the axilla, which we believed to be a fibro-adenoma. She thought she had a cancer; hence her return.

The fourth case presented an interesting history. The woman from whom the specimen was removed I first saw with Dr. Leon K. Baldauf when she was 41 years of age, with a lump in one breast and a diffuse fibro-cystic disease of both breasts. and both were removed at that time. During the operation we thought there was an area in the right breast that was suspicious and submitted sections to the pathologist for microscopic examination, the report showing a chronic adenocystoma of the left breast, with no evidence of malignancy, and in the right breast a beginning or early carcinoma. Two or three days later, in April, 1928, we did a radical removal of what had been left on the right side, cleaning out the axillae and removing the fascia and pectoral muscles on that side, and believed that we had gotten everything out clean. In December, 1929, she came under the care of Dr. Morris Flexner with a local recurrence at the anterior edge of the axilla. This was widely removed, operation being followed by an infection of an erysipelatous character, which cleared up after two or three weeks and the wound healed. She went along then until February, 1932, having been kept under observation constantly during that time. Early in January of this year she noticed the presence of an enlarged gland in the axilla, and on February 8th this gland was removed, which, upon microscopic examination proved to be a recurrence of the adeno-carcinoma of the breast. The secondary growths in this individual were in no sense metastases but simply local recurrences due to the fact that we did not go widely enough at the original operation. After the last operation we instituted radium treatment and it is our intention to follow this with deep x-ray therapy.

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*Read before the Medico-Chirurgical Society.

I am of the opinion that fibro-cystic disease does at times become malignant and, therefore, when seen, the woman should be watched very closely or, in some instances, the breasts removed as soon as possible.

An interesting feature of the last case reported is the fact that the recurrences cannot be regarded as metastases but as purely local recurrences and, therefore, not subject to the same grave prognosis as in the true metastases.

## DISCUSSION

**J. Garland Sherrill:** Dr. Frank's cases illustrate several different varieties of breast tumors. First, that occurring in a male which is extremely rare. However, I have seen several cases and in one instance, removed a tumor from the breast of a man nearly eighty years old, which he was fearful was malignant but which proved to be a growth of benign character. There is, of course, a reason for the infrequency of tumors of the male breast. Men are not subject to the irritations of the breast that attend the exercise of the mother function, which make for the formation of these growths. Women who have borne children appear to be more subject to the development of malignant growths of the breast than are women who have not borne children although it is true that we often find malignant growths developing in the breasts of very young nulliparous women. These are nearly always encapsulated and very rarely painful except for a neuralgia of the breast during the menstrual period, particularly where small fibro-adenomata are present.

I am convinced that a chronic interstitial mastitis is always dangerous and that early operation is indicated in these cases. Malignant growths of the breast develop slowly and infiltrate widely from the point of origin, and eventually, as a rule, become attached to the nipple. Retraction of the nipple is one of the aids in early diagnosis Another point to remember is that the pectoral muscle itself is not ordinarily involved although the pectoral fascia does become involved. Hadley has demonstrated clearly that the tendency of these growths is to perforate through the intercostal spaces, following the lymph channels, and in radiating these cases he treats these points with small needles.

The trend of the times is to x-ray the chest to determine any glandular metastasis in cases of suspected cancer of the breast. In addition to showing any involvement of the breast, x-ray, in conjunction with careful percussion, will oftentimes give us valuable information and the patient is certainly entitled to the benefit of all modern methods of diagnosis.

**L. Wallace Frank:** One point in connection with this report that I wish to call attention to is the effect of infection in cases of malignant breast tumors. I recall two cases in particular, one of which was well advanced, involving practically the whole field, with glands in the axilla. Radical operation was done and the wound closed. Streptococcic infection developed and practically all the fascia in the axilla sloughed out. In the course of time the patient recovered and to this date, twelve years later, has remained entirely well. I had another case with almost identically the same history; in both cases after nearly losing their lives as the result of streptococcic infection, they recovered and are still living and well.

The explanation of this is comparatively simple; the streptococcic infection invading the fascia, destroys it, including the fine lymph channels containing the carcinomatous cells, and thereby accomplishes a much more thorough dissection than the surgeon can ever hope to do with the scalpel. I am almost inclined to the idea that, if we could be sure that the patient would survive it would be good practice to infect these patients as a method of treating them. It is certainly a thought worth bearing in mind when we consider that in cases where there is axillary involvement the mortality is 60 to 74 per cent, while in cases where there is no axillary involvement it is 30 percent or less.

**A. J. Miller:** There are two points I desire to discuss. First, the association of chronic inflammation and neoplasm. Some time ago there were sent to the laboratory two mammary glands from the same patient, who presented a history of chronic inflammation of the breast continuing over a period of thirty years, with recent enlargement and pain. He removed both glands locally, because the patient was by that time eighty-one years old and not a good operative risk and, therefore, the treatment was purely palliative. The specimens were interesting in that, in each gland, one could easily demonstrate the typical pathology of chronic inflammation and the change from the ordinary papillary type of epithelioma to carcinoma. In one of the glands a mass about five centimeters in diameter was demonstrated to be pure sarcoma or connective tissue tumor. I thought this was extremely interesting. I do not know what it proves, however, unless possibly the association of chronic inflammation and neoplasm and the fact that it took thirty years for the cancerous change to occur.

The second point is that most neoplasms, especially malignant epithelial tumors, seem to have very little affinity for the muscles. We seldom see invasion of the pectoralis muscle in carcinoma, and where the muscle is invaded the connective tissue of the sheath is attacked and the carcinomatous cells grow down between the muscle bundles in the fascia, avoiding the muscle cells. This is also true of infections. Most infections find the connective tissue a more succulent affair than the muscles.

**Louis Frank,** (in closing): The case mentioned by Dr. Miller is very interesting in that it is along the lines of experimental work done by Yamagiwa of Japan in the production of cancer in rabbits, rats and mice, in which he demonstrated that it requires a period which in the life of the experimental animal corresponds proportionally to fifteen to seventeen years of human life, for an irritation to produce carcinoma.

I think all cases of carcinoma of the breast should have x-ray studies of the chest and long bones for the purpose of establishing whether or not metastasis exists at the time of operation. In many cases metastasis undoubtedly exists at the time of the primary operation as we will find as we come to study these cases more thoroughly. Strange to say, bone metastasis appear to occur if we except hypernephroma more frequently after cancer of the breast than any other type, comprising 13 per cent of cases studied by Copeland. Murphy used to say that ninety per cent of breast cancer had bone metastasis but this does not appear to be borne out by the facts, and was probably over-estimated by him as a means of impressing upon his pupils the frequency with which it does occur.

## REPORT OF CASES*

OWSLEY GRANT, M. D.

Louisville.

I wish to make a brief report of two cases that have recently come under my observation representing very different types of cases but illustrative of the fact that we may sometimes "strain at a gnat and swallow a camel."

Case I. Patient a woman of about 35 years who has for a long time complained of pain on the right side of a type simulating that caused by distention of the renal pelvis. The urine showed nothing, pain in her right side being practically her only symptom. The patient was x-rayed, the first picture being taken in the supine position, and it apparently shows some destruction of the upper calix of the kidney, but the other calices are practically normal and the ureter is not particularly enlarged. The second picture, taken in the upright position, shows marked dropping of the kidney but with no visible kink. There did not appear to be sufficient pathology to justify an operation. The better plan apparently was to have the patient wear a supporting belt and see if that would do any good. This she did for about three months without any real relief, at the end of which time she came back to me demanding that she be given relief. Accordingly, we did a suspension, following which she was entirely relieved of her pain. The third picture, taken about five months after the operation, shows that where formerly there was very definite destruction of the upper calix, it is now perfect and there is normal function.

This case is interesting because of the fact that while the pathology was not great, it caused pain that became practically intolerable, which was entirely relieved by a comparatively simple procedure.

Case II. Patient a woman about 63 years of age, had enjoyed perfect health all her life; had borne two or three children and had no trouble of any kind until about five months ago, when she was sent to me because of the presence of blood in her urine. Examination revealed considerable erosion about the neck of the bladder. She was working every day and presented no symptoms except blood in her urine, for which the disturbance about the neck of the bladder might have been responsible. I attempted to catheterize both urethers but was unsuccessful; I got into one a distance of four or five centimeters and into the other not at all. I was somewhat chagrined by my failure to find the other ureter and gave her some indigo-carmine in an attempt to locate it, but I could detect no discharge except from one ureter. I was finally led to the suspicion that she had but one kidney, so I had a skiodan picture made, which is shown here tonight. It shows absolutely nothing upon the right side. One kidney is doing all the functioning and she is in perfect health; in fact, she would never have come to me had it not been for the fact that a friend of hers who is a trained nurse heard her talk of having blood in her urine.

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*Read before the Medico-Chirurgical Society.

These two cases, of entirely different types, illustrate on the one hand how much pathology may exist with comparatively slight disturbance, and, on the other hand, how little pathology may give rise to extreme pain. There was no history of injury in either case.

## DISCUSSION

**Morris J. Flexner:** I cannot imagine a patient showing such enormous distention of the ureter and the big kidney pelvis shown in this picture without the existence of an obstruction of some kind to account for them. As to cases of single kidney, I have seen them before I am sure.

**Louis Frank:** I cannot conceive of any individual presenting a dilated ureter and distended kidney pelvis such as this picture shows without the existence at some time of an obstruction lower down in the ureter; in fact, it might almost be said to be a **sine qua non** of such a condition and should be assumed from the beginning. Again, the mere fact that no shadow appears on the other side is not conclusive evidence that there is no kidney on that side. The patient may have had a tuberculous kidney that was put out of commission by Nature. We know that is one of Nature's ways of dealing with tuberculosis of one kidney and I can recall having seen just such cases, one in particular in which no ureteral opening could be found and yet by palpation the kidney could be positively demonstrated.

The first case reported was very interesting, but I have reached the point where I believe that, without the manifestation of more pathology than was present in this case, operation is not justified. The conclusion has been forced upon me that any case of movable or displaced kidney must exhibit in addition to Deitel's crisis considerably more evidence of pathology than this picture shows, before the operation of kidney fixation is justifiable. In most of these cases putting the patient to bed on a high caloric diet until fifteen or twenty pounds of weight are gained, will render operative procedure unnecessary. I think our former practice of fixation in a great many cases of movable kidney and displaced uteri was a mistake.

**A. J. Miller:** I would like to see just one case of the entire absence of one kidney demonstrated at autopsy. In my own personal experience, embracing more than four thousand autopsies, I have never seen an instance of it. Of course, I know that it does occur but it is an exceedingly rare condition.

In regard to dilatation of the ureter, I have never been able to reconcile myself to the idea that dilatation of the ureter or elongation of its tortuous course is positive evidence of obstruction. I know that it is the almost universal opinion among urologists that if the ureter is dilated there must be obstruction, but we often cannot demonstrate that obstruction postmortem. I have seen dilated ureters so large as to be mistaken for an intestine, in which I have not been able to demonstrate an obstruction. There may be functional obstruction, but this cannot be demonstrated post mortem. It seems to me that inflammation of the ureter might result in its elongation or dilatation without mechanical obstruction.

This much is also true: If one kidney be removed from a laboratory animal, the remaining ureter does not become dilated although the kidney hypertrophies.

**J. Garland Sherrill:** Dr. Grant is to be congratulated upon the manner in which he handled the first case reported. While I agree with Dr. Frank that we have passed the period of our first enthusiasm for kidney fixation and do not perform this operation as frequently as we formerly did, I do not believe, as he does, that putting patients to bed and feeding them will always accomplish the desired result. Sometimes even with very little displacement of the kidney especially where the patient is highly neurotic, there will be very distressing symptoms, and this appears to have been true in Dr. Grant's case. The picture shows that the results obtained are splendid and I congratulate him.

In regard to the second case, in all my pathological experience I have never seen just that type of picture. Like others who have discussed the case, I would say that for a ureter to attain the size shown in the picture, there must necessarily have been an obstruction of some kind. I have seen some very large ureters in tuberculosis of the kidney but Dr. Grant's case does not show any of the typical changes that we see in such cases.

Some years ago I reported a case of hydronephrosis in which the ureter was widely dilated as the result of obstruction by stones. This case has become a classic. The patient, a man, had been carrying a hydro-nephrotic kidney for sixteen years with only slight discomfort and upon coming to operation, forty-three stones were removed from the lower ureter, with complete recovery.

**W. Owsley Grant, (in closing):** In regard to the second case reported, I do not maintain that this woman has only one kidney; that cannot be absolutely proved. I am convinced, however, that this woman has no functioning kidney on that side. Anything beyond this is merely surmising. Is it or is it not a congenital absence of one kidney? There are many things which point to this hypothesis. First, the urine from the patient's bladder is absolutely negative so far as pus is concerned. The next thing we have to consider is the dilatation of the ureter, and the question arises, what constitutes obstruction? If we say it is a narrowing of one part of the ureter as compared with another part of the ureter, then there certainly can be no dilatation without obstruction for the simple reason there is always a narrowing of some part of the ureter. In this case, the woman's ureteral orifice is perhaps one-tenth the size of the ureter.

About ten years ago I reported to the American Urological Association the case of a baby fourteen months old, which came under my observation, in which the urine was almost solid with pus, and the child had two enormously dilated ureters with normal orifices. There was no obstruction so far as I could determine. I introduced two catheters, changing them at intervals, and at the end of a month when I took them out, the ureters had become normal and the infection had cleared up under irrigation. My contention in this case was that the child in very early infancy had some infection which had caused destruction of the muscular walls of the ureters and permitted them to dilate.

I do not agree with Dr. Frank and others that there must be obstruction in order to have dilatation of the ureter unless in the term obstruction we include a narrowing of the caliber of the ureter. I have seen autopsies upon individuals with prostatic obstructions that had not been operated upon, in whom the ureters were enormously dilated with perfectly normal ureteral orifices. In these cases almost invariably there is considerable infection in the kidney pelvis and in the ureter itself, which causes a narrowing of the lumen of the ureter at some point and it is this rather than a true obstruction that causes the dilatation.

In regard to the first case reported, I agree with Dr. Frank that in many cases the operation of kidney fixation gives very unsatisfactory results, but in this woman, with the calices dilated as they were, and causing her intolerable pain, which was completely relieved, I think the operation was justified. Whether or not the same result could have been accomplished by putting her to bed and feeding her for five or six months, I do not know. The operation itself is simple, involves no great danger, and gives the patient a start equal to four or five weeks in bed. Nephropexy is again coming into favor among urologists. Dr. Sherrill asked about the method employed. I used the Frank Kidd operation which I think is a good one. His theory of the etiology of fallen kidney is that it is due to the loss of fibro-plastic tissue in the fat which permits the kidney to drop.

# THE TREATMENT OF POST OPERATIVE ILEUS

G. A. Hendon, M. D., F. A. C. S.

Louisville.

The causes of post operative ileus are septic and traumatic. The sepsis being supplied by spreading or diffuse peritonitis and the trauma by prolonged manipulation or accident. The treatment is prophylactic and therapeutic. The prime object in both should be the suspension of function and the drainage of the intestinal canal. Next in importance is to supply fluid and nutrition and the essential mineral salts and to maintain the visceral temperature and provide against the loss of fluid by excessive perspiration. The prophylactic measures should be applied in all cases of diffuse peritonitis before the operation is begun and continued during its performance and subsequently. The most important of these is, according to my idea, venoclysis, which is best achieved by the method and apparatus that I have devised. In acute cases, as soon as the patient reaches the operating room under local anaesthetic, the cannula should be inserted and secured in a suitable vein and a ten per cent glucose in Ringer's solution allowed to flow at the rate of 40 drops per minute, if the patient is an adult. For children, the rate is reduced according to age. Such therapeutic agents as seem indicated may be added to the solution. These include citrated blood hypertonic salt and heart stimulants. In chronic conditions, this treatment should be begun several days in advance and the patient gradually built up to the highest possible peak of resistance and the operation timed to meet this most favorable occasion. After the abdomen has been opened and a long and tedious task is in prospect, we may then resort to the internal hot water bag to conserve heat and furnish fluid if necessary. This is accomplished in the following manner: the meso-appendix is clamped and cut and ligated. The tip of the appendix is cut off and a catheter of appropriate size is passed through the lumen of the appendix into the cecum and secured by two linen sutures passed through the wall of the appendix and tied. The entire colon may now be filled with water at a temperature of 120. The catheter is clamped to prevent its escape and thus establish a perfect source of heat and fluid inside the abdomen. At the conclusion of the operation, the appendix is brought out at the lower angle of the incision. The catheter is still left in situ to serve later for the various therapeutic purposes that may be suggested—such as introduction of fluid, nutritious enemas from above or purgation enemas as circumstances may indicate.

In about six days, the appendix sloughs off and the catheter may be allowed to remain or withdrawn as appears the more desirable.

The advantages of this operation are:

1. It gets rid of the appendix after making it serve a useful purpose.
2. I have never seen a fistula persist after its use.
3. It is easily and quickly performed.

It should not be confused or identified with Weir's Appendecostomy, an operation in which the meso-appendix is not cut and the appendix is preserved.

The second procedure in the prophylactic group is the enterostomy which I described and published in the Annals of Surgery, July, 1932 and is illustrated in the recent work of Rankin, Bargen and Buie. A small nick is made in the convex wall of a distended loop of bowel and a Pezzer Catheter threaded on a stylett is introduced into the lumen of the bowel. The stylette is withdrawn and the bulbous part of the catheter expands and a purse string suture is carried around the stem which holds it in place. When convalescence is established the catheter may be withdrawn or the stem severed as close to the head as possible and the latter allowed to drop in the intestinal canal and become evacuated per viam naturalis.

The third plan of enterostomy is to open the cecum and insert a Pezzer catheter threaded on a stylette through the ilio cecal opening. The circular fibres of that structure help to hold it in place. The opening made in the cecum is purse-stringed around the stem of the catheter and attached to the parietal peritoneum. The only difference between prophylactic and therapeutic treatment is time and efficacy. The measures above noted are twice as effectual if employed at the initial operation as compared to results obtained when involved in a secondary operation. There should be no occasion for the secondary operation, except a mechanical obstruction because the steps above indicated should find ample justification in the presence of diffuse or spreading peritonitis and paralytic ileus from any cause.

I feel convinced that the reluctance on the part of surgeons in the past to perform enterostomy was due more to the time consuming difficulties of the operation and a fear of fecal fistula than to a lack of faith in its usefulness. I am, therefore, now encouraged in the belief that with the adoption of the methods described herein, the objections prevailing in the past will be swept away and patients will get their enterostomies as prophylactic measures instead of therapeutic remedies. I am convinced that whatever unpopularity enterostomy may have sustained was due to the *how* and the *when* of the operation. The method employed and the time of its employment. It is not ideal in its results: what is there in this world that is? It does not do all that may be expected of it, but who is there that does? Why put a tongue in a wagon, you can't make the wagon talk, but it greatly facilitates other uses that a wagon is supposed to fulfill. An enterostomy properly timed and executed enables one to do something that one feels ought to be done. But through an enterostomy tube one can introduce large volumes of fluids that will dilute the intestinal contents and in that way detoxicate them to a degree. The fluid may carry a temperature of 120.3 which is at least discouraging to the propogation of intestinal flora and does not harm the individual. Enterostomy is not a perfect drainage operation, neither is gastro enterostomy, but it cures a large percent of gastric and duodenal ulcers though it was originally designed as a drainage operation.

Through an enterostomy tube may be administered such drugs as will promote peristalsis by local contact such as turpentine, milk of assafoetida and salines. It is understood and admitted that good surgical vision and good surgical technique is the most important ingredient of prophylaxis. In the event of a mechanical post operative obstruction, however, brilliant success may be achieved if due regard is paid to the value of time and the symptoms. The conditions may be stated as follows: the progress has been what one would expect under the circumstances, subsequent to an operation, but at the end of 48 hours or more, the symptoms become intensified. The patient grows more restless, the pulse quickens and the vomiting increases. Pain is more severe and borborygmus is more pronounced. In the presence of this group of symptoms, the patient should be given one ampoule of pituitrin and follow it in thirty minutes with an enema, wait thirty minutes and if results are not satisfactory, immediate operation is imperative. The operation will usually reveal a finger-like projection of omentum that has made projection to the seat of operation and become attached to a raw surface, thereby, forming a snare that has engaged a loop of bowel. The constricting band is clamped and divided and ligated. If the operation has been done promptly, the results are miraculous. But, if there is not immediate and visible movement of liquid and gas from the proximal to the distal segment of bowel, one may conclude that gut paralysis has obtained and provision for enterostomy should be immediately instituted. The occurrence of mechanical obstruction furnishes the only important example of the difference in method between prophylactic and therapeutic treatment. I have not included in either classification the uses of such remedies as enemas, gastric lavage and the use of the Rehfuss and Levin or Lyon Tube. They are so universally recognized and employed that it would be needless repetition to call attention to their application. also eserin and pituitrin have their places which is quite important and vital to the welfare of the patient. I should like to refer once more to the importance of the quiescent interval intervening between the operation and the advent of symptoms, on account of its importance as a sign in differential diagnosis. Paralytic ileus begins to show its presence from the time the patient returns to consciousness, but the mechanical type waits at least 48 hours and often much longer. It is my belief that purgatives are distinctly harmful in both types, mechanical and paralytic, but I do adhere to the rule of allowing the patient an unrestricted quantity of water.

The following case reports will serve to illustrate the usefulness of the procedures advocated and described in this essay.

Case 1. Resection of right colon for malignancy in the cecum. Proximal ileum anastomosed to transverse colon. Enterostomy made in the ileum with Pezzar catheter as described in the text. Venoclysis established, no food allowed by the stomach for seven days. Patient made a good recovery and has remained well to date, one year after operation.

Case 2. Patient operated for right tuboovarian abscess. In separating an adhesion between ileum and abscess wall, the gut was torn. The rent was repaired and the abscess sac removed. The appendix was catheterized as described, for ten days served as a medium for the introduction of fluid, nutrition and medicine as well as drainage when occasion demanded. The patient recovered.

Case 3. (Treated by Dr. A. D. Wilmoth). Woman, age 47. Had obstruction of the bowel, chronic with fecal fistula. Brought to the hospital unconscious. Venoclysis was instituted. Patient recovered consciousness in 24 hours and in a week was able to undergo an operation for closure of the fistula, breaking the obstructing adhesions and removal of a large gall stone.

Case 4. Women with perforated duodenal ulcer and profound shock, very cold, pulse weak and thready abdomen quickly opened and packed with warm wet gauze sponges. The appendix catheterized and colon filled three pints of water at 120 F., and the catheter clamped to retain it. The operation for closing the perforation and making a gastrojejunostomy was completed. The patient reacted promptly and recovered. At six to eight hour intervals, the water was allowed to drain and fresh solution added thereby, keeping it warm and at the same time cleansing the bowel.

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# ALLERGY*

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Louisville.

Allergy is the term now generally used synonymously with the words anaphylaxis, hypersensitiveness, sensitization, hypersusceptibility, and idiosyncrasy.

There is a tendency to restrict the term anaphylaxis to the description of the condition occurring in animal experimentation in which acute and violent manifestations of specific hypersensitiveness are obtained. It is evident that the mechanism of these phenomena are similar, and an understanding of hay fever, asthma, and the so-called allergic diseases may be obtained through the study of anaphylaxis in animal experimentation.

If egg white is injected into a guinea pig, the animal remains healthy and his tissues are apparently unchanged. However, if the animal receives a second injection of the same substance some fourteen days later the guinea pig develops pulmonary oedema and dies.

It was formerly thought that proteins only were antigens and could produce these reactions, but we now know that carbohydrates, simple chemicals and possibly such physical agents as heat and cold may likewise be antigenic. Similarly it has been difficult to explain how the organism became sensitized when there was no history of the previous introduction of the specific antigen. When we realize that only minute particles of the antigen may be necessary to sensitize, and that such antigens may enter the body by ingestion, inhalation or by contact with the body surfaces, in both health and disease, the phenomena is more readily understood.

When an individual who is susceptible, or in an allergic state, is sensitized by contact with an allergen, he remains in a balanced allergic state so long as his tolerance is not overcome by sufficient exposure to the same specific allergen. Should this tolerance be overcome, the individual suffers from what is known as an allergic shock, and he will mani-

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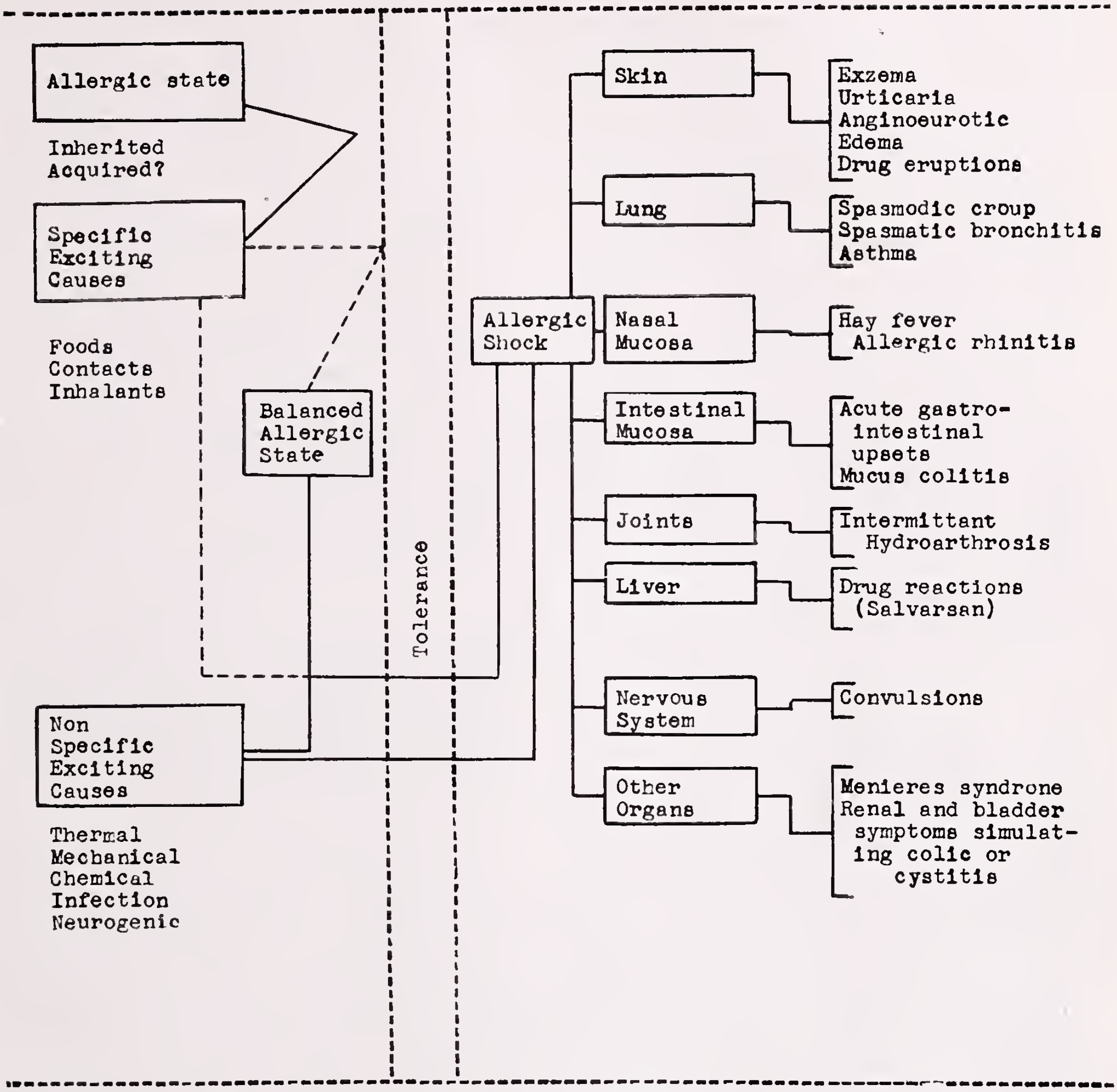
MECHANISM OF ALLERGIC SYMPTOM PRODUCTION



fest symptoms such as asthma, hives, or gastro-intestinal disturbances dependent upon which organ attempts to combat or absorb the shock. A study of the accompanying schematic diagram simplifies and may give a better understanding of the mechanism of allergic symptom production.

We may ask; why are only certain individuals sensitive to these allergens? The exact reason we do not know but certainly it seems to be a directly inherited characteristic. While many patients will recall cases of hay fever or asthma in their family history, few mention or remember eczema, hives, colitis, or other possible allergic conditions. Likewise an individual may be in an allergic state, yet not encounter the specific substance to which he is sensitive, or the amount of the allergen may be so small that the individual possesses sufficient tolerance to retain his balanced allergic state. Yet children of this same individual may inherit definite allergic tendencies.

### Diagnosis

In studying the allergic patient a careful and painstaking history is of the utmost importance. The patient's age, the onset of symptoms, the frequency, severity and the time of the occurrence of attacks, the season of the year, family history, home environment, the presence of animals, industrial exposure to chemicals or dust, the type of bedding and furniture must be ascertained. A thorough history usually suffices for the physician to determine if the patient is allergic and it may suggest a clue as to some of the exciting causes.

A thorough physical examination should be done and routine blood and urinary examinations made. When indicated, special studies of the lungs, teeth, nasal sinuses, heart and gastro-intestinal tract should be made.

Finally there remains the skin tests which while of the utmost importance should not be emphasized to the exclusion of the aforementioned examinations. Formerly, dried extracts of the various allergens were mixed with saline or tenth normal sodium hydroxide and rubbed into the scratch. The objections to this method are that the potency of the extracts cannot be determined and the method of application often produces false reactions, or fails to react when the allergen is positive. I routinely use the scratch test, using fresh glycernized extracts of the allergens and applying approximately 300 of the more usual allergens. For practical purposes many of these allergens are placed in groups, and if positive of course must be tested individually. Those which are negative may then be tested intradermally. An allergen which gives a positive scratch test might prove dangerous if injected intradermally and this safety precaution is the most important function of the scratch test. With this precaution, however, and using such dilutions that experience and practice have proved safe, it is inadvisable to do more than eight intradermal tests in one day. Should a general reaction occur despite these precautions one should be prepared to treat immediately any untoward symptom. With the exception of the greater danger in doing intradermal tests the advantages are many. They are more specific, there is less danger of contamination and the reactions are more easily interpreted. Two other methods of skin testing that are utilized are the patch test and the indirect method whereby the patient's blood serum is utilized.

A positive skin test must never be regarded as more than just a clew. Before positive indictment of any allergen can be made it is necessary to satisfy the following postulates. First, the patient's symptoms must be brought under control by removal of the suspected allergen. It is then necessary to expose the patient to the suspected allergen and to reproduce the symptoms. These postulates must be satisfied before any allergen which gives a positive skin test may be included or excluded in the list of specific causes. In certain allergic conditions where it may be impractical to utilize the skin tests use is made of so-called air filtered, allergy free rooms. Where food is the suspected excitent, use of elimination diets prove of practical importance. In all these tests the absolute co-operation of the patient is vitally necessary.

### Hay Fever

The symptoms of hay fever or pollen disease, which affects about 1% of the population of the United States, are too well known to warrant description. When it is severe it may be accompanied by asthma. It occurs less frequently as asthma without the oculo-nasal symptoms. The history of attacks recurring before June is most often due to the pollenation of trees. The season is so short, the symptoms so mild and avoidance of contact so readily obtained that special desensitization is rarely indicated. From June until August the principal cause of hay fever is grass pollen. About 5% of the hay fever sufferers in this country are this type. In Europe this is the principal cause of hay fever. Patients who are sensitive to one grass are liable to be sensitive to all the several hundred members of the grass family. For this reason it is desirable that the physician be acquainted with the principal hay fever producing plants in his locality. In Louisville there are four major grasses. The early symptoms are due to June grass and orchard grass and the latter ones to timothy and red top.

Fall hay fever which begins in this locality about August 15th, is caused by the pollen of the plants of the compositae group, particularly giant and short ragweed and occasionally cocklebur. It is this type which is responsible for symptoms of about 90% of the hay fever sufferers in this country. Goldenrod, sunflower and other decorative members of this group are popularly blamed but we know that they are even less frequently the cause of fall hay fever than flowers or roses are the cause of summer hay fever.

The symptoms of fall hay fever tend to become more severe until they reach a peak during the early days of September. This peak is synchronous with the maximum amounts of pollen to be found in the air. This peak lasts for about two weeks and gradually subsides until the first frost when pollenation ceases. The direction of the wind and the amount of rain will of course markedly influence the pollen concentration and the accompanying symptoms. Again individuals differ as regards their tolerance. One patient may be hardly affected by a pollen concentration that will prove intolerable to another. Asthmatic attacks may be precipitated by heavy barometric conditions.

### Treatment

"Gravel is an effectual remedy. It should be taken about eight feet deep"; was the reply of Dr. Oliver Wendell Holmes, in 1868 to an enquiry of Henry Ward Beecher, for a satisfactory remedy for the treatment of hay fever.

It has been only within recent years with the advent of specific treatment and a better understanding of the disease that this pessimistic attitude could be erased. Prior to this time practically every potent drug in the pharmacopeia had been advocated in the treatment of hay fever. Local palliatives, paintings, penciling insufflations, spraying, medicated sponges and tampons, snuff and smelling bottles all had their vogue. Even more recently bacterial vaccines, non-specific proteins and drastic though ineffectual intranasal surgery and manipulation have been advocated. Calcium and the use of cod liver oil is still employed by some physicians but the work of Criep, McElroy, Ramirez and M. Cohen, tend to show that calcium therapy is of little or no value in the treatment of allergic conditions.

The nitrohydrochloric acid treatment originally advocated by Bishop, in 1893 was recently revived by Beckman. In June, 1932 while in this city Dr. Beckman, presented statistics which compared favorably with results obtained by specific desensitization. In my own limited experience (six cases) treatment with nitrohydrochloric acid in the prescribed doses has proved very unsatisfactory, and of considerable less value as a satisfactory adjuvant to pollen extract therapy than the alkaloids of ephedrine.

While epinephrine and cocaine, either alone or in combination are among the drugs that have enjoyed a wide and persistent vogue in the treatment of hay fever, the fleeting action of the former and the habit forming properties of the latter, have considerably detracted from such considerable virtue they may have.

The alkaloids of ephedrine likewise are capable of producing symptomatic relief either as a local adjuvent or when taken internally or hypodermatically. Combined with amytal or phenol-barbitol, the effect of ephedrine taken by mouth is considerably enhanced and the unpleasant neurologic effects are usually prevented. Ephedrine is valuable in preventing mild seizures of asthma and for controlling the mild wheezing. During an acute paroxysm of the asthmatic phase of hay fever the drug has not proved effective and the early hypodermatic injection of ephinephrine is necessary and desirable.

Thommen warns that considerable care should be exercised in giving a hypodermic injection of ephinephrine (or ephedrine) to a patient who has ineffectually endeavored to control an attack of asthma with ephedrine per os, even when the ephedrine has produced no evident systemic effect, or several hours have passed since the last dose of the drug was taken. Under the circumstances he suggests that it is perhaps best to place one's reliance in the hypodermic use of morphine and atropine, the former, however, always being used with due caution. I have observed no disagreeable effects in such cases, however, where small repeated doses (3 minims) of adrenalin was used and would consider such danger from epinephrine of less moment than might be expected from effective doses of morphine.

Regarding the specific treatment of hay fever, namely, the repeated injection of extracts of pollen, the results in the hands of trained allergists have been so excellent as to make other forms of treatment such as the use of pollen air filters or trips to hay fever resorts quite superfluous in the vast majority of cases. Failure to obtain such results may be attributed to: (1) Improper diagnosis (2) Impotent extracts (3) Inadequate final dosage (4) Discontinuance of treatment too soon. The specific treatment is spoken of disparingly sometimes by patients and physicians who have experienced slight or no benefits following 15 dose treatments with some commercial extract. However, the final dosage recommended (1000 units) is insufficient to protect any but those who are only slightly sensitive or are exposed to only small amounts of pollen. Again individuals whose tolerance might be sufficient at the beginning of the season, lose this tolerance rapidly and if the treatment is not continued throughout the season will likely show symptoms before the season is over.

Whereas the commercial extracts recommend 1000 units and occasionally additional doses as much as 1500 units, we find it necessary in Louisville, to raise the patient's tolerance to at least 30,000 units. This dosage gives complete protection to 90% of the patients if it is continued at weekly intervals throughout the season. Obviously it is necessary to give more than 15 injections to obtain such tolerance, often 30 or more injections being necessary. Having once obtained a tolerance sufficient to protect the patient this tolerance is maintained throughout the year by the injection once a month of a dose calculated 20% less than the maximum seasonal dose. Not only is this an economical method but there is some hope that by so doing the patient may eventually be completely desensitized.

Despite the avoidance of all the causes of failure that have been noted, there are still from 5 to 10 per cent who are not completely desensitized and a few who derive no benefit at all. These individuals may be inherently unable to take large doses of the extract without severe or even dangerous reactions. Finally exposure to overwhelmingly large doses of pollen as may be obtained in cross country travel may be sufficient to overcome the tolerance of an individual who has been desensitized to a relatively large amount of the pollen. For these latter unfortunate few we are still dependent upon the assistance of pollen air filters or change of environment.

### ASTHMA

Generally speaking asthma is an attack of dyspnea characterized by sudden onset, wheezing and prolonged expiration. It occurs in allergic individuals when the lung is the organ chiefly involved in allergic shock.

Some individuals have asthma either alone or associated with other hay fever manifestations which occur seasonally and is due to pollen. Others have symptoms throughout the year which may be worse during the hay fever season. This would be described as perennial asthma with seasonal exacerbations.

The asthmatic paroxysm is produced when an allergic individual comes into sufficient contact with the specific excitent to which he is sensitive. The excitent may be extrensic such as pollen or food, intrinsic such as focal infection, cardiac or renal disease, or may be a combination of both. When an external excitent is the cause it is the duty of the physician to determine what substance it might be and either to remove such an allergen from the patient's environment or to attempt to desensitize him similarly to the method used in hay fever. In asthma due to intrinsic causes wherever it is feasible, focal infections may be removed surgically or the underlying causes may be treated with the most efficient means at our disposal whether it be bed rest, administration of vaccines, or the use of such drugs as may comfort or raise the tolerance of the individual. In some instances the patient may be sensitive to both intrinsic and extrinsic excitents in which instance it is necessary to combine the treatment to care for both types of excitents.

As previously mentioned in the treatment of pollen asthma, adrenalin is the drug of choice to combat the acute exacerbation. Ephedrine alone or in combination may be used to prevent and to treat the milder symptoms. It is sometime necessary to instruct the patient in the use of a hypodermic so that adrenalin may be self administered. The advantage to this instruction is that the patient may prevent an asthmatic seizure at the beginning, whereas, if the progress were allowed to continue the symptoms would be more difficult to combat. Repeated small doses of adrenalin (3 to 5 minims) is preferable to single large doses. Attempts to re-enactivate the action of the drug by massage of the injected area, in my experience has been of little value.

Some individuals are benefited by inhalations of medicated vapors or the inhalation of the so-called asthmatic cigarettes.

### OTHER ALLERGIC CONDITIONS

Eczema particularly in children is not infrequently an allergic manifestation. Similarly mucus colitis, recurrent gastro-intestinal upsets and even constipation may be allergic in origin.

Urticaria, another allergic condition, is of interest particularly because in this condition skin tests are of no value, and it is often by means of substitution diets and other indirect methods that the offending allergen may be discovered.

Migraine is a condition often associated with the ingestion of certain foods. The fact that children born of parents who have suffered from migraine, often develop allergic disease, is strongly suggestive that this condition may be included as one of the allergic diseases.

### SUMMARY

It has been only within recent years that the study of allergic conditions has begun to receive the attention that it deserves. The science while yet in its swaddling clothes has brought comfort and health to many sufferers from conditions where efficacy of treatment was heretofore dubious or impossible. At the present time there is nothing at the disposal of the medical profession that will eliminate the allergic state and the best that can be done is to prevent symptoms either by avoidance of contact or by certain methods of specific desensitizations.

Probably in no condition is there greater necessity for the absolute co-operation of the patient with his physician. Furthermore, this co-operation may be necessary for many months and sometimes a period of several years. The end results, however, are usually encouraging and not infrequently the results are brilliant. The physician who is willing to thoroughly familiarize himself with the caprices and variety of allergic manifestations, and is able to gain the sustained co-operation necessary from his patients will be amply repaid by the comfort and happiness he is able to bring to the large majority of such sufferers.

(I wish to take this opportunity to express my appreciation of the instruction and kindly interest of Drs. Milton B. Cohen and J. A. Rudolph, both, during and since my visit to their Cleveland Clinic. I have borrowed fully of their ideas.)

### DISCUSSION

**Charles N. Kavanaugh**, Lexington: Hypersensitiveness cannot be excluded in any case of asthma. In every case a sensitization test should be done, regardless of age or whether or not there is a clear-cut history of infectious origin or whether there is frank focal infection. There are various ways of doing this. A lot of the men get discouraged when they hear men who specialize on allergy say they shouldn't do these tests. It depends a great deal upon the circumstances and the accuracy that you wish to obtain.

There is no doubt that the intradermal test is the best. You probably get 85 to 90 per cent reactions, but you will get quite a group that give false reactions that are quite misleading.

The cutaneous test with the fluid mixture is very satisfactory and you get at least 85 per cent positive results. With the more easily handled method with the powdered extracts your results are probable 65 to 75 per cent. That is a very good average, and it is very easy for anyone to do. Routine use of three of four hundred proteins on every patient is wrong. A good history, taken with a great deal of care, will give you an idea of which group to use in testing. We very seldom use more than 60 or 80 allergens.

Seasonal hay fever is often conditioned by susceptibility to other proteins. Patients suffering with seasonal hay fever should always be tested with the more common proteins, because it is not unusual to see a patient that has seasonal hay fever that is probably susceptible in a mild degree to orris root or egg or wheat, and with the removal of these proteins they are free from hay fever.

We get multiple sensitivities in about 50 per cent of the cases. The identity of the offending protein is by trial and error.

If a skin reaction does not agree with your history you had better go further into the case, because if you get a positive skin reaction for a certain protein, you can usually go further into the history and find out whether or not it is the particular protein causing symptoms.

The treatment, particularly of hay fever, is very effective. The pre-seasonal, co-seasonal or perennial treatment is equally effective. So many people come to you after the hay fever season has started and then you tell them it is too late. You can get results in almost 65 per cent of these patients. The majority of patients after they have been treated successfully for four or five years generally establish immunity and can go ahead without further treatment.

**Hugh R. Leavell**, Louisville: This is certainly a very interesting paper on a comprehensive subject. There are several points that I think might be mentioned particularly. One is the value of the pollen calendar for the district in which the patient resides, with the dates of the pollenation of the various plants, etc., which can only be determined by making a local survey with the aid of someone who understands the botany of the district.

Frequently people give positive skin reactions to the grasses but complain of symptoms only during the ragweed season. It seems very likely that their mucous membranes are gotten in an unfortunate, boggy condition, by the grass pollens so that the ragweed pollen can produce much more damaging results than it might if they were not sensitive to the grasses. So it is probably a good idea, even though the patients show no symptoms during the grass season, to give them some immunizing treatment for them.

We have been interested here in the value of locally collected pollen. Whether it is any better in diagnosis and treatment of hay fever and other pollen diseases than pollen which may perhaps be obtained from California or other places, I don't know. There is a large pollen farm in California which supplies a good deal of the pollen for the whole country, and we are not ready to say that this is very important yet, but it is a possibility that people who suffer from hay fever may do better on local pollens than they would do on some obtained from an other district.

Dr. Kavanaugh mentioned the importance of sensitization to more than one allergen, and that is particularly brought out by a patient we have had this year who had been suffering from hay fever in the ragweed season. He had been treated several years by the injection of pollen. It was found that he was sensitive to horse dander and to egg in addition to ragweed. By the elimination of these two and carrying on the treatment just as it had been before with the pollens, he has been able to carry through this season without any difficulty.

**Winston U. Rutledge**, Louisville: This paper of Dr. Cohen's seems to me to fit in very excellently with the paper of Dr. Kelly this morning on eczema, because of the fact that we do believe, and I think it is a question that ought to be emphasized and re-emphasized, that most of the cases of eczema that we see these days are due to sensitization to contact substances. We have come to feel that the word eczema is synonymous with dermatitis in everyone except children, and that the only true type of eczema as we recognize it today is the infantile variety, which is, probably up to the end of the second year, due to foods, particularly wheat and milk and eggs. In cases of eczema in adults, the patch tests, the scratch tests or the intracutaneous tests often lead us to a correct diagnosis of these cases. Where they do not and where we suspect foods, we think that elimination diets such as the ones prepared by Rowe and subsequently modified by Dale and Thornburg often give excellent results and clear up cases that otherwise would be very puzzling to us.

**G. C. Thornton**, Lebanon: I just want to add my little experience to the experience of the others regarding the treatment of hayfever. For the last six or seven years I have been using Mulford's vaccine for the treatment of fall hay fever. When I began using it I had very little confidence in its efficacy, but recently I am further convinced that in our section the treatment is perfectly dependable. I am talking of the fall hay fever. I give the vaccine every five days, but I double the dose the first two or three doses and then gradually increase the dose. I begin about the 20th of July, and by the last of August my patient is free of hay fever. After treating these patients for two or three years they are relieved, they have become immunized, or so nearly immunized that they don't have any more trouble.

**Leon L. Solomon,** Louisville: Whatever Dr. Beckman has to say regarding therapy, we have come to receive with a feeling of security. I was present, a few weeks ago, when the Doctor presented the thesis, referred to by the essayist. He called attention to the fact that nitro-muriatic acid in his hands had brought about considerable benefit. At that meeting, held at the Louisville City Hospial, one of Dr. Beckman's out-of-town friends stated that his results had been disappointing. Now comes Dr. Cohen stating to this meeting that his experience with nitro-muriatic acid has not been satisfactory. My observation of the effect of the acid corroborates Dr. Beckman's. Whether the allergy is expressed as a digestive disturbance, as an urticaria, as an asthma, or as a joint condition, I have seen good result following the administration of the chemically pure acid.

Dr. Beckman was asked last summer for an explanation of the modus operandi of the acid, the questioner calling attention to the fact that the profession in latter years had come to depend upon alkalies. Dr. Beckman was unable to answer the inquiry. I stated then what I repeat today: "I believe the effect may be explained on the hypothesis of stimulation of the alkaline producing glands in the digestive tract by the action of an acid."

It is a well known clinical fact that acids administered before or after meals often improve digestion by their stimulating effect on the salivary glands and like stimulation of the alkaline intestinal juices, including alkaline pancreatic juices and alkaline bile.

At the same time, since like things exert a repellant effect the amount of acid secretion in the stomach is likely diminished through the effect of the nitro-muriatic acid.

It is worth while to remember that the physician of old, though he lacked the scientific means of arriving at conclusions, so freely possessed by the doctor of the day, was nevertheless skilled in the employment of many measures and sometimes he outstripped modern accomplishment. Frequently and freely nitro-muriatic acid was administered by our forefathers. It was called Aqua Regia because it was a solvent for gold. The pure acid, given in small dose—say one to two drops—is superior to the dilute acid, of which the ordinary dose was 10 to 15 drops.

**Armand E. Cohen,** (in closing): Dr. Kavanaugh has suggested that the history might obviate the necessity of doing the large number of routine skin tests that I consider necessary. An illustration may demonstrate why I consider this detail so important. Recently I saw a young lady who gave a strongly positive skin reaction to pyrethrum, a chemical found in a number of insecticides. Sensitiveness to this agent was not suggested by her original history but she later remembered that attacks of asthma were induced when ever she was exposed to the air in a room where flytox had been used. We subsequently were able to demonstrate her sensitiveness to this agent.

I am acquainted with some of the work Dr. Leavell is doing with pollen counts. We are indebted to some of the biological laboratories who with the assistance of the United States Weather Bureau, have not only furnished us with complete studies of the types and concentrations of local pollen during the hay fever season, but have made similar studies in the cities throughout the United States. Incidentally, Louisville has one of the heaviest concentrations of ragweed pollen of any of the cities of the group.

I hope that Dr. Leavell will see fit to have the results of his research published. It should be of considerable practical interest.

There is a need likewise for a more complete study of the hay fever producing trees, grasses and weeds of the state. It might be of interest to note that one of the earliest, perhaps the first list of Kentucky plants was prepared by Henrico M'Murtrie, M. D. under the title "Florula Louisvillensis" and was published in Louisville, in 1819. In 1833 Doctors Short and Peter, of Lexington, published their list of Kentucky plants in the Transylvania Journal of Medicine.

I quite agree with Dr. Rutledge, regarding the importance of allergy in eczema and the various skin manifestations.

Replying to Dr. Thornton, I believe that it is possible to get results from the use of non-specific therapy such as the vaccines which he mentions, however, I do believe that the specific treatment which is almost as simple, probably will give superior results.

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**Electrocardiograms in Extrasystole.**—Kristenson found that, on experimental stimulation of points on the anterior surface of the heart, electrocardiograms of the dextrogram type are obtained from the part of the heart nearest to the basal electrode, of the levogram type from the part of the heart nearest the apical electrode, and, on excitation of an intermediary zone, electrocardiograms of transition type. The field over which this intermediary zone extends seems to be at right angles to an imaginary line of union between the two electrodes, both in his case and in those previously reported.

# RUPTURED PEPTIC ULCER; CASE REPORT*

J. GARLAND SHERRILL, M. D.

Louisville.

Many cases of so called acute indigestion occurring promptly after a large meal, progressing rapidly to a fatal termination,are in fact cases of unrecognized, perforating peptic ulcer. The immediate exitus occurs from the shock and overwhelming toxemia,due to the escape of gastric contents into the peritoneal cavity.

The outcome in a given case depends upon the amount of peritoneal soiling, the promptness and accuracy of diagnosis, and the celerity with which operative intervention is obtained. The gravity in such a case depends upon the time after a meal at which the perforation occurs, the amount and character of the material escaping through the rupture, the normal resistance of the patient and the length of time elapsing before operation can be completed. The danger increases with each hour of delay before surgical measures are employed.

It has been my fortune to see a number of cases of perforative ulcer of this type within the last few years. The one presented in this report has some points of special interest which justify its presentation for your consideration. Many cases of perforation occur in which no symptoms of previous digestive disturbance are elicited prior to the rupture. Careful questioning and study of the case may elicit vague complaints of epigastric distress before or after meals. The picture of a perforating peptic ulcer is so distinctive that delay to study thoroughly the previous history before the operation is not justifiable. Later, when studied at leisure, most patients will give some evidence pointing to ulcer.

Sudden, severe, persistent epigastric pain, board-like rigidity of the abdomen, most marked on the right and in the epigastrium, with cold sweat, subnormal temperature, pallor, rapid feeble pulse, and evidence of distress are sufficient to justify a diagnosis. Confusion may occur between this type of lesion and rupture of the gall bladder, or rupture of the acutely inflamed appendix, acute pancreatitis, or thrombosis of the mesentery, each of these conditions being grave and imperative surgical emergencies. Serious cardiac lesions such as coronary bloc or acute dilatation may present a picture which will confuse the observer, but either of these affections is sufficiently distinctive for him to decide that operation is not indicated.

After rupture of an ulcer has occurred, little time should be expended in x-ray study, still when the examination can be had without loss of time it may be a valuable aid. It is more valuable where the case comes under observation some days after the leak has been established. This opportunity occurs but seldom since the affection usually progresses to a fatal conclusion in the absence of operative relief. This method of examination is of the greatest value in the study of peptic ulcer prior to rupture. In extremely rare cases with a minute leak, the opening may be sealed by a peritoneal plug and recovery take place.

J. F., male, 44, shipping clerk, came under the care of Dr. Geo. M. McLeish on August 27, 1932. Eleven years prior to this time while at supper he was seized with a severe attack of acute indigestion. The epigastric pain was quite severe with considerable distention and belching, but no nausea or vomiting. Since his first gastric attack he has been troubled with digestive disturbance from time to time, occasionally for several months he would be very comfortable. The symptoms would recur and persist for a time and a remission would occur. His complaint was epigastric pain and sour stomach. The pain was relieved by belching or vomiting, during the earlier attacks there was no vomiting of blood but in recent months the vomitus showed streaks of blood. He has been constipated for years. There has been no pus or blood in the stools since he had a hemorrhoidectomy two years ago. He continued to have gastric symptoms while under the care of Dr. McLeish with intervals of remission until September 15, 1932, when he entered the Jewish Hospital for X-ray study. In Dr. McLeish's opinion he had an ulcer at the pylorus or in the duodenum. This opinion was confirmed by Dr. I. T. Fugate's report of the Roentgenogram and fluoroscopic study. He remained in the hospital until September 25th, 1932, at which time he had shown improvement.

On October 3, 1932 while eating his evening meal about six P. M. he was seized with a most severe epigastric pain with marked rigidity and great tenderness and Dr. McLeish recognized that rupture of the ulcer had occurred. He was at once sent to the hospital and when I saw him and found the symptoms just mentioned I confirmed the previous diagnosis, notwithstanding the fact that his pulse was slow, full and strong, the rate being 68 per minute and his respiration 20. His temperature was 96.8 but he had no other evidence of shock. He was immediately prepared for section and came to operation at 8 P. M.

At operation the abdomen contained free fluid which was escaping through a small opening on the anterior surface just at the gastro-duodenal junction. Considerable induration was present at the pylorus and in the adjacent portion of the stomach. This was sufficient to prevent closure of the leak by simple pursestring suture which succeeds so well in cases where induration is not present. Excision of the ulcer and duodenostomy was not suited to the condition, and it was felt that a gastroenterostomy would probably fail because of the difficulty of closing the rent satisfactorily. It was found necessary to make an anterior gastro-jejunostomy directly to the extremity of the stomach.

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*Read before Jefferson County Medical Society.

The patient's pulse, temperature and respiration continued about normal throughout. Except for annoying hiccough, which lasted for some days with nausea lasting for the same time and requiring gastric lavage, he has made a satisfactory convalescence.

This case illustrates conclusively the necessity of surgical treatment to relieve the symptoms in the presence of a peptic ulcer persisting for a long time. The necessity is greater when the pyloric obstruction causes retention of food in the stomach. Persistent hyperacidity and sharp epigastric pain even prior to rupture call for operative intervention.

## DISCUSSION

**Irvin Abell**: There are two or three things in Dr. Sherrill's report that I wish to comment upon.

The thing that has impressed me most in every instance of acute perforated peptic ulcer has been the intense, board-like rigidity of the upper abdomen. We occasionally see cases in which the pulse is practically normal, and others in which shock is rather marked, but the intense rigidity of the upper abdomen is a feature of every case that is more distinguishing than any other except, possibly, the history.

One phase of the subject that I particularly want to emphasize is the fact that Dr. Sherrill has done a radical operation in the presence of an acute perforation. There has been, and still is, considrable discussion as to the advisability of a radical operation in the presence of an acute perforation, but when one stops to consider that within the first six to ten hours following the perforation, the peritonitis is a chemical rather than an infectious one, there can be no reasonable objection, assuming that the patient's condition is satisfactory, to doing a radical operation, granting that the local condition demands it. When twelve to eighteen hours have elapsed following the perforation, the peritonitis has changed from a chemical to an infectious type, and the simplest procedure, closing the leak and closing the abdomen, is the one best suited to the case. The essential indication to prevent further contamination is met by closure of the perforation: granting that, as in this case, the ulcer is calloused, and the deformity of the duodenum or pylorus from long-continued ulceration is such that closure of the ulcer by simple suture would greatly increase the obstruction, and further that the patient is seen while the peritonitis is still a chemical one, there can be no reasonable objection to doing a radical operation.

Under similar conditions we have done the operation described by Dr. Sherrill, namely, resection, and as well, in like cases, pyloroplasties and posterior gastro-enterostomies, without in any instance influencing unfavorably the immediate result and in all but one giving permanent relief, thus obviating the necessity of a second operation.

**George A. Hendon**: I wish to congratulate Dr. Sherrill alike upon his good fortune, good judgment and good surgery; those three things put together are very hard to beat.

I particularly want to call attention to a procedure that might be adopted when conditions are such that it does not appear feasible to do a radical operation. We understand, of course, that such an operation as removing the damaged structures, is ideal, but we also know that time and again we meet with cases in which the strength and vitality of the patient and the condition of the structures surrounding the opening make radical surgery very difficult and hazardous to do.

I have found the problem to be simplified in this way: By loosening the duodenum from its posterior attachment down to the entrance to the common duct and telescoping it into the stomach. This covers the ulcer with four plies of serous mucous and muscular covering. Of course, you completely close the pyloric end of the stomach. This makes a gastro-enterostomy necessary. In one instance the patient died three or four years after operation from uterine hemorrhage due to fibroid, and we had an opportunity to examine the stomach post-mortem. We found that the three of four layers of peritoneal surface over the ulcer had completely taken care of the situation.

I present this as a comparatively easy method of dealing with a difficult situation with an added degree of safety and a considerable degree of simplicity.

**I. T. Fugate**: I thank Dr. Sherrill for his complimentary remarks concerning my findings in this case. There was nothing unusual about these; they were simply the ordinary findings in the presence of an old duodenal or pyloric-ring ulcer with rather marked obstruction. I was never quite positive whether this ulcer was in the duodenum or pyloric ring. It is sometimes hard to distinguish between the two. While I am still of the opinion that this obstruction was o the benign character still, as Dr. Sherrill says, there was some infiltration and it will be interesting to watch this patient and see if in years to come he shows any evidence of malignant changes. As you know, it is stated by our best pathologist that where there is the infiltration which Dr. Sherrill speaks of that if enough microscopic sections are studied there is a predominant finding of malignancy in this type of case. Another thing interesting in this case; four months past I rayed this man's mouth and found numerous carious teeth which I am of the opinion was probably a big factor in the development of his ulcer.

I saw this man three days past, twenty-five days after the operation. He has gained some ten or twelve pounds in weight, is feeling excellent and is evidently well on the road to recovery.

**Geo. M. McLeish:** Thus far I am greatly pleased with the result of operation on this patient. As we know, all gastric surgery is a very serious proposition, and it takes a real surgeon to cope with a situation of this kind.

It is unfortunate that we have no means of knowing just when a peptic ulcer is going to perforate and thus be able to avoid some of the things that bring these individuals to surgery, the most serious of which is perforation. The medical men claim to be able to cure symptoms due to inflammatory oedema or swelling, and pyloric spasm, but they do not claim to be able to cure stenosis due to chronic inflammation, resulting in contraction of the viscera thus producing malnutrition. This man was sent to the Jewish Hospital for x-ray study following treatment by alkalies, diet, etc. He seemed to improve for a while under hospitalization but worried considerably about matters arising from the economic depression and started to work shortly after leaving the hospital, and immediately his symptoms returned. It is marvelous how symptoms such as vomiting are often relieved by hospitalization. I believe if this man had been able to stay in the hospital for several months, possibly the ulcer would have completely healed and there would have been no perforation.

In a series of cases reported by Dr. J. William Hinton from the Gastro-enterological Clinic of the Fourth Medical and Surgical Divisions of Bellevue Hospital extending over a period from January 1, 1928 to October 1, 1931 they claim that the principal symptom which brings these patients to surgery is pain, and only pain which cannot be relieved by any methods of medical care, and further that if the patient is operated upon too early, i.e. during the first few months of the disease one can usually expect an unsatisfactory result from either gastro-enterostomy, pyloroplasty or subtotal gastrectomy. That there is a diversity of opinion regarding even surgical treatment of these cases shows that the last chapter on this subject has not yet been written. These ulcers occur only in the presence of gastric juices, and how can one be sure, even after a gastro-jejunostomy has been performed, that the ulcer will not recur in the jejunum?

Dr. Edmund H. Mensing of Milwaukee, Wis., has been doing a jejunostomy only in the treatment of these cases. He uses an electric feeding pump by means of which, through a tube into the jejunum the feeding mixture is ejected into the jejunum similarly to the spurt of chyme from the duodenum. By means of continuous feedings, hunger contractions are eliminated. The tube is usually removed in from four to five weeks and the resulting fistulous tract closes in a few days, and the ulcerated areas in the stomach are healed.

**J. Garland Sherrill,** (in closing): I did not go into the etiology of this condition because we do not know what causes it, but we do know that bad teeth are better out than in when a man has bad teeth, as this one had, and develops a peptic ulcer, there is always the possibility that there is some connection between the two. Rosenow claims that, as the result of infection, thrombi may be carried into this region and lodge in the stomach, wall, or some slight traumatism occurs, the peptic juices begin to eat away the tissues, and an ulcer is formed. That may be true in some cases; for example, following a severe burn there is the possibility of an infarct.

There are two types of pain in peptic ulcer. First the so-called "hunger" pain, which makes its appearance within an hour or two after a meal and gradually increases up to the time of the ingestion of more food. It is nearly always relieved by alkaline treatment. But whenever the patient complains of sudden, sharp, agonizing pain, there probably is a leak. Of course, there is not always a leak, but we do not get that sharp, severe pain without inflammation of the serosa and no one can tell when an ulcer of this type will begin to leak. Indications of an impending leak are stenosis, pyloric spasm, which may or may not be benefitted by atropin and alkalinization, and when the pain persists in spite of treatment, it is a warning that the ulcer may perforate if it has not already done so. There are two types of ulcers; the erosion which rarely perforates and the acute form which tends to rupture. The first type is soft and the tissues are pliable, and we can do almost any kind of surgery, but where the ulcer is of the indurated type, from which malignancy most frequently develops, it is much safer to get the indurated tissue out.

It is possbile that if drainage had been instituted in this case, the man would not have had such a stormy convalescence, but we know that the drain tends to the formation of adhesions and perhaps it is just as well that we did not drain.

The point I would most strongly emphasize is that when these patients are not promptly relieved by medical treatment, immediate operation should be most seriously considered. I take an entirelly different view of a duodenal ulcer that bleeds. Here we have changes in the circulatory apparatus which play a part in promoting the healing of the ulcer and recovery usually occurs under careful diet and medical care.

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## CALCIUM METABOLISM IN HEALTH AND DISEASE*

James E. Winter, M. D.

Louisville.

Calcium, the most abundant metal occurring in the body, has a variety of uses many of which are little appreciated. Within the past few years a great deal of interest has been aroused by some of the brilliant discoveries which have added to our knowledge of the physiology of calcium. As a result, certain diseases which heretofore have baffled us, are among the long list of those which science has conquered.

In discussing the metabolism of calcium one must consider its absorption and excretion, its relation to other substances, its functions and its effects both with an oversupply or an undersupply present in the body.

From one to one and five-tenths grams of calcium are required to maintain calcium equilibrium in the body. The growing child requires an even larger proportionate amount to supply its needs, storing as much as three-tenths gram daily.

### Absorption

The absorption of calcium is governed by several factors.

1. The hydrogen ion concentration in the intestine, increased acidity aiding in absorption by increasing solubility.
2. Certain other substances in the diet. Excess fats break down to fatty acids which combine to form insoluble soaps. Excess phosphates help to form insoluble tertiary phosphates. Lactose breaks down to lactic acid aiding absorption. Chlorides, being acid salts, also aid in absorption.
3. The antirachitic vitamin D acts as a catalytic agent in increasing intestinal absorption.

### Excretion

Calcium is excreted both by the large intestine and the kidney, from 10 to 40% being excreted through the urine. In youth, during pregnancy and lactation it is necessary to maintain a positive balance; in old age there is probably a negative balance. The following things affect calcium excretion:

1. Parathyroid hormone increases urinary excretion.
2. Increased thyroid secretion causes marked increase due to catabolic effect on bone. Consequently in myxoedema the excretion is about 40 % below normal.
3. Vitamin D lessens excretion while its deficiency increases it.
4. Mineral acids increase excretion.
5. Excess alkalies increase excretion.
6. Base-forming diets decrease urinary calcium.

### Calcium in the Blood

Most of the calcium in blood occurs in the serum, none being found in the red cells. The normal amount is 9 to 11 mgms. per 100 cc, of which 60% is diffusible and 15 to 25% ionizable. The spinal fluid contains about 5 mgms. per 100 cc.

### Factors Which Influence Serum Level

1. Parathyroid hormone increases both diffusible and non-diffusible calcium.
2. Pregnancy causes a slight lowering.
3. Vitamin D increases serum concentration.
4. Plasma proteins increase solubility of calcium in serum, consequently it is low in certain types of nephritis.
5. Serum phosphorus. The calcium content of serum varies inversely as the phosphorus.
6. Increased $CO_2$ tension or H ion concentration enables serum to maintain higher calcium concentration.

Calcium and phosphorus both occur in higher concentration in serum than is possible in water. This is probably due to the high $CO_2$ tension. Some of the calcium is probably held in the form of calcium proteinate.

### Functions of Calcium

Approximately 90% of bone calcium exists in the form of calcium tertiary phosphate, most of the remaining factor being calcium carbonate. The deposition of calcium in bone is dependent upon alimentary absorption, depression of solubility of serum calcium causing precipitation in bone when the $CO_2$ tension is very low. Vitamin D and the parathyroid hormone also play an important but little understood part in this process.

Calcium diminishes the permeability of cell membranes. This is probably the basis on which most of its physiological actions depend. It increases the forcefulness of cardiac contraction and lessens the relaxation between beats. It apparently is concerned in the transformation of chemical energy into muscular contraction. It decreases muscular irritability, being necessary for the passage of the nerve impulses across the myoneural junction. It increases vascular tone and diminishes capillary permeability thus being of value in oedema. It plays an important part in the clotting of blood.

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*Read before the Kentucky State Medical Association at Louisville,, October 3-6, 1932.

### ABNORMAL METABOLISM

Deficiency in Vitamin D or ultra violet rays causes a low bone content of calcium and phosphorus. This may or may not be associated with a low serum content. In the latter type we have tetany associated with the rickets. In rickets the loss in calcium is largely through the feces.

If too much Vitamin D is administered we may have hypercalcemia with metastatic calcification with deposits occurring chiefly in the walls of blood vessels. The same condition may be produced by excessive dosage of parathyroid hormone. These results are extremely rare and have been produced chiefly in experimental animals.

In hypoparathyroidism we have hypocalcemia producing tetany accompanied by rarefaction of bone. There is retention of phosphorus with diminished urinary excretion of both phosphorus and calcium. Tetany usually occurs when serum calcium falls below 7 mgms. per 100 cc.

In experimental hypercalcemia we have nausea, drowsiness, diarrhea, muscular flaccidity, coma and eventually death. In clinical cases the serum calcium has been found as high as 18 mgms. per 100 cc. This usually occurs in tumors of the parathyroid gland. They show metastatic calcification, imperfect clot formation and muscular weakness, the syndrome usually being known as Von Recklinghausen's disease. Hypercalcemia also occurs in polycythemia vera.

In osteomalacia there is a low serum calcium in which tetany is common probably due to Vitamin D deficiency. In prolonged hyperthyroidism we frequently have marked osteoporosis. This is due to increased calcium and phosphorus excretion. In myxoedema the reverse is true.

We find a lowered calcium serum level in nephrosis probably due to low serum protein, in some cases of nephritis with oedema, kala azar, sprue, and coeliac disease of infants.

Calcium salts prevent experimental oedema and clinical allergic manifestations due to their power to decrease cell permeability. There is apparently increased diffusibility of calcium in these cases.

### THERAPEUTIC USE

In calcium therapy we must take into consideration the absorption, metabolism and excretion of the drug. For these reasons calcium salts are given with parathyroid extract and ammonium chloride. Calcium lactate and calcium gluconate have been found to be the most satisfactory forms for oral administration. The dosage must be large to be effective. The gluconate may be injected intramuscularly. Any of the soluble salts may be used intravenously although this method is advised only in emergency owing to danger of thrombosis.

Parathyroid hormone may be given hypodermically as it draws out calcium from the bone which is the main source of reserve.

Ammonium chloride in large doses given with calcium, by producing an acidosis, aids in ionization of calcium. It can be used therapeutically.

Calcium has also been used in the treatment of eclampsia, liver insufficiency, jaundice, cholecystitis, hemorrhage, edema, asthma, urticaria, lead poisoning, tuberculosis, colitis, hyperacidity, cardiac failure, cocaine and strychnine poisoning and hypertension.

A great amount of research remains necessary to explain many of the mooted questions involved in calcium metabolism. Calcium therapy has been used in a wide range of conditions with apparent value and shows promise of being a valuable aid in the treatment of many diseases.

## DISCUSSION

**George A. Hendon**, Louisville: I want to say at the outset that my knowledge and experience with calcium gluconate is based upon a specific method of administration, and that is that it is combined with a ten per cent solution of glucose and administered continuously at the physiological ratio of delivery. There are some very important and very valuable things to know about calcium. We found that in our peritonitis cases when the calcium content of the blood got down to four or under seven, our patients did badly, and by adding the calcium gluconate by our method of administration, the calcium content could be raised up to approximately ten, prompt improvement would take place.

The case of Dr. Brennon referred to this morning is a most striking illustration of calcium gluconate in connection with a raise in the white blood count.

I want to call your attention more particularly to an article written by Ruth Tunicliff, connected with the McCormack Laboratory for Infectious Diseases in Chicago, in which her experiments showed that calcium gluconate would raise the phagocytic action of the white blood cells four times their normal, that their fighting power could be multiplied by four, that the substance that was next in importance in performing the same feat was glucose, which would raise the phagocytic action three times. If any of you want to read this article you will find it in the February issue, 1931, of the Journal of Infectious Diseases.

Regarding hypercalcemia, I have been very much interested in using this method of treatment for the cure of peptic ulcers. We have a group now of about eighteen cases that are apparently well that were treated this way. In those cases, in making our calcium estimate, we found the blood calcium to go as high as 27 milligrams for each 100 c. c., without any deleterious symptoms having been observed.

If these experiments are to be relied upon, we have a very marvelous agent and my clinical experience seems in some instance to support that theory or that laboratory experiment, which was not only laboratory but clinical as well.

I take a great deal of pleasure in submitting this as an addition to what we already know concerning the phagocytic action of the white cells, not only multiplying the white cells, but multiplying their fighting power. I can recommend it to you in that manner.

**Morris Flexner**, Louisville: I would like to make one suggestion in connecting Dr. Cohen's paper with Dr. Winter's. Dr. Winter has said that increased acidity, increased hydrogen ion concentration, increases blood calcium, in other words that it does that as well as diminishes the permeability of the cell membranes. All of us have seen calcium do some good in allergic states. I have seen it benefit people who have urticaria and hay fever.

Just recently I had a man tell me that he had found the solution to his hay fever. He had gone to Michigan every summer, but Dr. Brady suggested that he take fifteen grains of calcium lactate three times a day before his meals: he did that this summer, and stayed home and didn't have any hay fever.

The nitrohydrochloric acid that everybody is enthusiastic about but which has not been so successful in my hands, probably works by increasing the blood calcium. I think it would be very interesting to check that up.

**Henry M. Rubel**, Louisville: I would like to call the attention of the obstetricians to the use of calcium during pregnancy. If there is anything in the researches of the various men as well as Dr. Winter, who I think has done some of the most outstanding work in the city, calcium ought to be used during a number of months in the course of pregnancy. The thing is to get the woman's blood calcium. If she is running around, say 10 milligrams per 100 c .c. and you can keep her at that with your diet, all right. If she falls below that, due to the anabolic metamorphosis of the child, and you have a rapid withdrawal of calcium, this can be supplied by either calcium gluconate or calcium lactate or any of the other calcium preparations and thereby keep her in good balance.

In case you have any forms of tetany manifesting themselves, or eclamptic states, or edema, or liver toxemia, or any tendency to hemorrhage, I think calcium should be resorted to.

There is another phase and that is in regard to hypercalcemia. If the administration of calcium is not safeguarded may we have a hypercalemia and later on have a premature ossification of the child's bones with trouble in delivery? Is it possible to have a premature ossification and then have some dystocia during the course of labor? So far I have never come in contact with any such condition. I think if you did give calcium you would have to give it in such large doses to get a condition of this nature that there isn't much danger.

I think Dr. Winter should be doubly congratulated in bringing the attention of this subject to the obstetricians. You may give calcium gluconate in tablet form, you may give it intravenously, or you may give calcium lactate. There is another preparation on the market called Calcionates. You give a teaspoonful in a half glass of water between meals. If you can keep the percentage of calcium around ten milligrams per 100 c. c. your patient will be in a very good physical condition.

**G. E. Wakerlin**, Louisville: I want simply to elaborate on two points mentioned, one the relation of calcium metabolism to the parathyroid gland and the other the relation of the calcium metabolism to Vitamin D.

In partial or complete parathyroidectomy, either done experimentally in the animal or occurring accidentally in the human being during thyroidectomy, we get a train of symptoms involving a decrease in the calcium content of the blood, a decrease in absorption of calcium from the intestinal tract, a decrease in the excretion of calcium by way of bowel and urine, and also a decrease in the deposition of calcium in the bone. On the other hand, in certain diseases which involve a disturbance of the calcium deposition in bone and also in animals which are on a calcium-poor diet, we see hypertrophy of the parathyroid glands. For example, in such diseases as rickets, osteomalacia, osteitis fibrosa, osteitis deformans, and multiple fibrocystic disease of the bone, we see a hypertrophy of the parathyroid glands.

The relationship between the parathyroids and calcium is further brought out by the fact that one can relieve the symptoms of parathyroid deficiency either by administering the parathyroid hormone or by administering calcium itself.

Relative to the toxic manifestations that one may see from parathyroid extract therapy, I might simply say that there is a definite danger in this regard, particularly when one considers that the relation between the toxic dose and the therapeutic dose is twenty to one, or somewhat less, so that one has to be on the lookout for possible hypercalcemia and toxic manifestations in administering parathyroid extract, and one should always run blood calcium determinations when he is giving a series of parathyroid extract injections.

The relation between Vitamin D and calcium metabolism is very similar to that between the parathyroid glands and calcium metabolism, but there are certain differences. In other words, Vitamin D deficiency causes a decreased calcium absorption from the intestinal tract, decreased deposition of calcium in the bone, decreased retention in the body, and an increase in the calcium excretion from the body. This symptom complex which we usually speak of as rickets can be cured by the administration of Vitamin D either in the form of cod liver oil or viosterol.

It is interesting in this connection that because of the differences between Vitamin D and parathyroid hormone in calcium metabolism we cannot in general get as good results by administering Vitamin D in parathyroid deficiency diseases as by giving parathyroid extract. On the other hand, we do sometimes use, as you know, the parathyroid extract in treating the more acute forms of Vitamin D deficiency, for example the tetany that we see in rickets.

Lastly, in commenting on the possibility of toxic manifestations from hypercalcemia due to overdosage with Vitamin D, this clinically is practically impossible because the relation between the toric dose and the therapeutic dose is something like 25,000 to 40,000 to one.

**C. W. Dowden,** Louisville: My interest and curiosity a few years ago concerning calcium metabolism, stimulated an investigation which consisted of the examination of the blood serum of 100 cases for the determination of the calcium contents. I was very much surprised to find that there wasn't sufficient variation in the calcium content of the blood serum to justify using this as a criterion for the administration of calcium. Notwithstanding that, however, I was firmly convinced that the use of calcium in certain conditions, particularly asthma and other similar disturbances, was of value. I am convinced that it is not the lack of calcium in the blood serum that accounts for this. I am furthermore convinced that it is due to a lack of utilization of calcium and this can only be determined by comparison of the spinal fluid calcium and the blood serum calcium.

As to one or two practical points in the use of calcium, it will be found if calcium is given about three hours after meals, during the so-called alkaline tide, much more will be utilized than if it is taken immediately after the meal, and larger quantities can be given. Furthermore, ammonium chloride serves to help in the utilization of calcium. The determination of calcium in the blood serum, except where there is evidence of injury to the parathyroids, is of no value in determining whether calcium is indicated or not.

**J. A. Orr,** Paris: A very important factor that affects calcium metabolism that has not been mentioned in the discussion is the relation of phosphorus to calcium. It has been demonstrated that the retention of calcium or phosphorus can be influenced by changing the ratio of the ingestion of calcium and phosphoric acid.

To bring about the utilization of calcium there must be three conditions present: assimilation, the presence of an available activator, and hydrogen ion concentration of the small intestine favorable to absorption. As was stated by Dr. Winter, it has been demonstrated that lowered hydrogen ion concentration favors calcium absorption. This must be below 8. Ultra violet rays and cod liver oil lower hydrogen ion concentration.

Telfer of the University of Glasgow, has recently demonstrated, or thinks he has at any rate, that the calcium is absorbed as a fatty acid radicle. As I understood Dr. Winter, that does not conform to his statement.

A decrease of the calcium content of the blood is not always equivalent to insufficiency of the parathyroid gland. Lack of all ultra-violet radiation causes a decrease of the calcium content of the blood. So will division of the splanchnic nerve and anesthesia. On the other hand, tetany does not necessarily appear, if, after the extirpation of the parathyroid gland, the calcium content of the blood sinks below normal. The University of Pennsylvania has recently demonstrated that tetany can be prevented by the administration of cod liver oil in sufficient amounts before the parathyroidectomy has been done.

**James E. Winter,** (in closing): Richardson has reported in the Illinois State Journal that while he has given calcium to pregnant women, he has found no intracranial ossification or cerebral hemorrhage which might be traceable to it. He states, however, that at the time of delivery it does decrease hemorrhage and is of decided advantage.

There are some other things I wish to bring out, one of which is the action of calcium in lead poisoning. In acute lead poisoning the quickest way to get lead out of the blood stream is to get it into the bone. By giving calcium in large amounts with Vitamin D it can be put into the bone, and the clinical symptoms will be relieved. During the chronic stage it is a question of getting lead out of the system. This can be done by having a low calcium diet, by giving acid in large quantities to increase the hydrogen ion concentration of the blood, and to a certain extent of the bone, so that the lead, along with the calcium, is taken into the blood stream and then excreted. The same holds true for mercury poisoning.

Calcium therapy to be effective, particularly given by mouth, must be given in large doses. 20 to 40 grains of the chloride of lactate and 60 grains of the gluconate which has a much larger radical, consequently less calcium, three to four times daily being the usual dose. When given intramuscularly or intravenously, 10 c. c. of a 10 per cent solution is the usual quantity. This may be given once a day or sometimes more frequently.

Calcium undoubtedly through its influence on the permeability of the cell membrane plays an important part in the allergic reactions A better knowledge of calcium metabolism may aid in the solution of some of the problems of allergy.

---

## BOOK REVIEWS

PSYLLIUM SEED, THE LATEST LAXATIVE. A SCIENTIFIC TREATISE. By J. F. Montague, M. D., Medical Director Montague Hospital For Intestinal Ailments, Late University and Bellevue Hospital Medical College. Fellow American Medical Association, Fellow New York Academy of Science, Fellow New York Pathological Society, and American College of Surgeons. 20 illustrations. Published by the Montague Hospital For Intestinal and Rectal Ailment, New York City.

This monograph gives the total existing information appertaining to the latest of laxative, namely psyllium seed. Although the home remedy was handed down from mother to daughter through many generations of French peasants, it did not gain official recognition of the medical profession of that country until 1833.

There has been heretofore a definite lack of information on the subject and this volume is welcomed by the profession as it contains a composite of knowledge gleaned from many sources.

---

SURGICAL PATHOLOGY OF THE FEMALE GENERATIVE ORGANS. By Arthur E. Hertzler, M. D., Surgeon to the Agnes Hertzler Memorial Hospital, Halstead Kansas, Professor of Surgery, University of Kansas. 285 illustrations. J. B. Lippincott Company, Publishers, Philadelphia, Montreal and London.

Any contribution to surgery by Dr. Hertzler is always welcome, whose chief concern in this book is to emphazize the need of conservation in operation and to point the painful effects of useless operations.

The book is profusely illustrated, in many instances the gross and microscopic picture is given in the same cut.

---

PHYSICAL CHEMISTRY OF LIVING TISSUES AND LIFE PROCESSES—As Studied by Artificial Imitation of Their Single Phases.—By R. Beutner, M. D., Ph. D., Professor of Pharmacology. School of Medicine. University of Louisville, Williams and Wilkins Company, Baltimore, Publishers. Price $5.00.

"Life in all its complexity seems to be no more than one of the innumerable properties of the compounds of carbon."

Life as a scientific problem has at present only three means of approach; anatomy or study by taking the object apart; chemistry, or study of the compounds which make up the object; and physiology, or study of the functions of the living object. To these Dr. Beutner would add a fourth, synthesis, or the artificial production of life.

Artificial synthesis of life is one of the oldest scientific problems, possibility of its achievement has been proven and disproven at least once every century. Present day scientists accept the possibility as probable but as something to be postponed to the remote future for which there is now no direct avenue of research.

On the contrary, Dr. Beutner believes that there is a tremendous field of pure research, as yet barely touched but one where the ultimate explanations of the most uncommon vital phenomena will be found. This is in the field of physical chemistry, applied to living tissues. Example of its useful application can be readily found. Today we say that calcium lactate has a beneficial effect on hay fever but physical chemistry as applied to life processes through the study of artificial synthesized cell membranes, explains that calcium makes a membrane less permeable by its lipoidal constituents.

Through interaction of calcium chloride and sodium silicate artificial mushrooms have been prepared which competent biologists were unable to distinguish from the natural product. No attempt was made to have them capable of life, it was only an attempt to reproduce natural forms through physiochemical processes. Throughout the book the first crude efforts of many widely scattered, poorly recognized, yet highly valuable researches are described.

Dr. R. Beutner is professor of pharmocology at the School of Medicine, University of Louisville. His scientific reputation is extensive, and he has delivered lectures on this subject by invitation at Columbia, at New York University, and at Wood Hole. He has done research at Johns Hopkins, and in New York under the auspices of the Rockefeller Foundation.

A field which has been greatly neglected and one which will in future years be of the most valuable service to medicine has been well and capably covered by Dr. Beutner, who has devoted many years to its study. The volume will do much to further interest in a subject of which even well-informed men are ignorant. The book contains no material more complicated than can be grasped by the average meical student, and it omits all complicated mathematical explanations. Its purchase will be a worth-while addition to any library which doubtless contains many volumes on anatomy, chemistry and physiology, but not one on this new approach to the study of living processes through synthesis.

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Incorporated

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NEXT MEETING MURRAY

## COUNTY SOCIETY REPORTS

**Jefferson**—The following is the program for the April meetings of the Jefferson County Medical Society:

April 3rd—Case Report

Phytobezoar, Wm. Edgar Fallis, M. D.

Symposium on Chest Surgery

Surgical Treatment of Pulmonary Tuberculosis, M. Lincoln Fisher, M. D., Waverly Hills Sanatorium. (Guest Speaker.)

Survey of Lung Abscess and Neoplasms, Clarence E. Bird, M. D.

Surgery of Acute and Chronic Empyema, Wallace Frank, M. D .

Discussion to be opened by Drs. Irvin Abell, Benjamin Brock and W. Hamilton Long.

April 17th—Address

Relation of Chronic Mastitis, Cysts and Papilloma to Carcinoma of the Breast. Demonstration of Tumors of the Breast by Transillumination, Max Cutler, M. D., Michael Reese Hospital Tumor Clinic, Chicago, Illinois.

(The above address is given under the auspices of St. Joseph's and Norton Infirmary Cancer Clinic.)

CHARLES M. EDELEN, Secretary.
I. T. FUGATE, President.

---

**Henderson:** On January 17th a prominent figure in the medical profession of Henderson County left his cares and trials and his ministry to those in distress and suffering to be carried on by his colleagues in the medical profession.

Dr. Jas. U. Ridley was called home the morning of January 17th after an illness of six months. Dr. Ridley suffered an apoplectic stroke in June, 1932 from which he partly recovered. On January 9th he suffered a second stroke from which he never recovered.

Dr. Ridley was born June 15th, 1883 in Caldwell County near Princeton and graduated from the University of Louisville Medical College. After graduation in 1909 he began the practice of medicine in Robards, Kentucky. He moved into Henderson after the war and continued to practice medicine there up until the time of his illness. He saw military service during the World War and was honorably discharged from the service of the United States Army with the rank of Captain in the Medical Corps. He took an active part in the founding of the Henderson Hospital, of which he was President at the time of his death.

Dr. Ridley was unselfish, diligent and kind both in his personal and professional life. He took an active interest in all civic matters pertaining to the welfare of the community and was always willing to help in anything that would benefit the physicial, moral and spiritual welfare of those in his community.

BE IT THEREFORE RESOLVED by The Henderson County Medical Society that we pay this last tribute of respect to his memory and service, and we extend our sympathy to his family whose loss we share.

BE IT FURTHER RESOLVED that a copy of this resolution be spread on the minutes of the Society, a copy be furnished the family of Dr. Ridley, and a copy be sent to the Kentucky Medical Journal.

COMMITTEE:
G. W. White, M. D.
J. O. Strother, M. D.
R. Emerson Smith, M. D.
G. F. Jones, M. D.

**Third District:** The Third District Medical Society met with the Barren County Society at the Community Hospital, Wednesday, February 15th, at 11 A. M. with thirty-five doctors present.

Under the heading of Case Reports, our Councilor, Dr. C. C. Howard, made a report, considering particularly the recently distributed report of the Committee on Cost of Medical Care. This subject was also discussed by Dr. Bushong and Dr. York.

Election of Officers: President, Dr. G. W. Bushong, Tompkinsville; Vice-President, Dr. E. D. Turner, Cave City; Secretary, Dr. Jno. H. Blackburn, Bowling Green.

Dr. G. W. Bushong read a paper on "The Relation of the Whole Time County Health Offieer to the General Practitioner." This paper was discussed by Doctors Howard, Loftus, Moore, Wells and Blackburn.

Luncheon was served in the Spottswood Hotel.

Dr. Beverly Douglas, Nashville, read a very complete and exhaustive paper on "Empyema in Childhood." This was discussed by Doctors Howard, Moore, Lattie Graves and Douglas.

Dr. Jno. H. Blackburn, Bowling Green, discussed "The Death Rate in Appendicitis," using charts to bring out the different factors in relation to this condition. This paper was discussed by Doctors Davis, McMurray (Nashville) and Dr. E. D. Turner.

The next meeting of this Society will be held in Bowling Green the middle of April.

JNO. H. BLACKBURN, Secreary.

**Letcher:** The Letcher County Medical Society held its Annual Meeting Tuesday night, January 31st in the dining room of the Daniel Boone Hotel (The December meeting (annual) had to be postponed due to the huge influenza epidemic).

A very excellent meal was served. The following physicians, dentists and guests attended: Dr. and Mrs. Thomas Jennings, Dr. and Mrs. J. E. Crawford, Dr. and Mrs. P. E. Stone, Dr. B. C. Beck, Dr. and Mrs. R. Dow Collins, Miss Grace Wells, P. H. N., Dr. Booz Adkins, Prof. R. Dean Squires; County Attorney, Astor Hogg, Whitesburg; Dr. and Mrs. John W. Mass, Dr. B. F. Wright, of Seco; Dr. H. R. Skagg, (President), Dr. John M. Bentley, Fleming; Dr. J. E. Skaggs, Neon; Dr. T. M. Radcliffe, Kona; Dr. Owen Pigman, Farraday; Mr. A. C. Slemp, Farraday; Dr. W. H. Jefferson, Elsie Coal; Dr. T. D. Vaughn, Dr. E. T. Sheppard, Jenkins; Dr. Noah H. Short, Dr. Culbertson, Norton, Va.

Drs. Martin, Howard and Buttermore, Harlan, were scheduled to be present and read papers but for some reason did not arrive.

Our ex-president, Dr. Thomas Jennings, acted as toastmaster, and well did he do the job. As the Harlan physicians did not appear, we had no regular program, but impromptu talks were made by most every one present.

Dr. H. R. Skaggs, retiring president, made a few choice remarks in reference to the closing of his presidency.

The following physicians were unanimously elected as officials for the year 1933: President, Dr. G. D. Ison, Blakey; Vice-President, Dr. B. C. Beck, Whitesburg; Secretary-Treasurer, Dr. R. Dow Collins, Whitesburg.

Our reguar meetings will continue to be the last Tuesday night of each month.

R. DOW COLLINS, Secretary.

**Jefferson:** The 675th Stated Meeting of the Jefferson County Medical Society was held in the City Hospital on Monday evening, January 23rd, 1933.

The meeting was called to order by Dr. Lee Palmer, Vice-President, at 8:10 P. M.

Minutes of meeting of January 8th were read and approved.

The Secretary presented the application of Dr. Charles Roser, bearing the indorsement of the Judicial Council, and upon motion by Dr. Oscar E. Bloch, duly seconded and carried, Dr. Roser was declared elected to membership in the Society.

There being no further business before the Society, the scientific pogram was proceeded with as follows:

### Scientific Program

Recent Advances in Squint, by Dr. Luther C. Peter, of the University of Pennsylvania Graduate School, Philadelphia, Pa.

(Address sponsored by the Louisville Eye, Ear, Nose and Throat Society.)

Discussion by Drs. Offutt, Lexington; Pryor, Abell, Beck, Baker, Leggett, Pirkey, Snyder, Frankfort; and in closing, by Dr. Peters.

Secretary.

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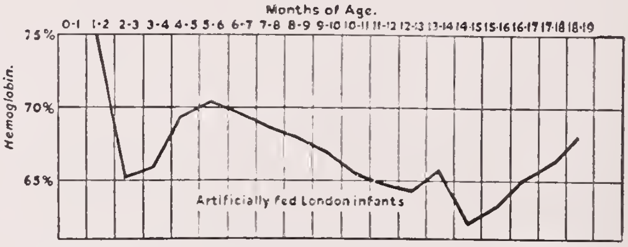
# *Preventing* NUTRITIONAL ANEMIA *in Infants through a Normal Dietary Regimen*

Nutritional anemia was present in 45% of the breast-fed and 51% of the bottle-fed in a group of more than 1,000 infants studied by Mackay.[1] Although this anemia was of mild degree, *it was sufficient approximately to double the morbidity among the artificially fed.*



*Hemoglobin level in the blood of infants of various ages. Note fall in hemoglobin, which is closely parallel to that of diminishing iron reserve in liver of average infant. Chart adapted from Mackay.*[1]

## *Anemia Prevalent*

Commenting on this work, the British Advisory Committee on Nutrition writes, "This form of anaemia is prevalent among infants, especially those living under conditions of city life, and is attributed to a deficiency of available iron and possibly also of copper. Its most important feature is susceptibility to infection, particularly a liability to colds, otorrhoea, bronchitis, and enteritis, and a tendency for infections to become chronic."[2]

Iron, incorporated in powdered milk, should be given as a routine to bottle-fed infants, according to the recommendations of this committee in a report to the Ministry of Health.

## *Milk Deficient in Iron*

Stored in the liver of the full-term infant is a supply of iron and copper theoretically sufficient for the first six months of life. But actually the reserve is subject to wide variation, probably because of (except in the case of prematures and twins) variations in the iron content of the mother's diet during pregnancy. Hill, for example, says, "If the mother is anemic herself, or if she has eaten little iron-containing food during the last months of pregnancy, her offspring is born with an insufficient iron deposit. . . ."[3]

| | IRON | COPPER |
|---|---|---|
| Cow's Milk, 14 oz. | 1.01 mg. | 0.166 mg. |
| Dextri-Maltose with Vitamin B, 1 oz. | 2.40 | 0.570 |
| | 3.41 | 0.736 |
| Daily Requirement* | 3.11 | "traces" |

*It is generally agreed that breast milk and particularly cow's milk are markedly deficient in iron and copper. But when 1 oz. of Dextri-Maltose with Vitamin B is added to 14 oz. cow's milk, properly diluted (as at 1 month), the above increase in iron and copper results.*

For the same reason that it is desirable to reinforce the milk supply of the infant with iron and copper, the trend is toward the introduction of iron-rich solid foods at an early age. The iron content of many foods is variable, however. Leichsenring and Flor[4] found that children's diets planned to contain 5 and 8.5 mg. iron actually contained only 3.25 and 6.5 mg., respectively. Mead's Cereal, higher than most foods in iron and containing standardized amounts of this mineral together with copper, can be administered as early as the third month, when nutritional anemia begins to appear (see chart above). Clinical studies by Summerfeldt[5] show that Mead's Cereal is capable of increasing the hemoglobin percentage of growing children.

| | IRON | COPPER |
|---|---|---|
| Cow's Milk, 20 oz. | 1.44 mg. | 0.24 mg. |
| Dextri-Maltose with Vitamin B, 1½ oz. | 3.60 | 0.855 |
| Mead's Cereal (dry), ¼ oz. | 1.70 | 0.09 |
| | 6.74 | 1.185 |
| Daily Requirement* | 4.18 | "traces" |

*When ¼ oz. of Mead's Cereal is fed to the 3-months-old infant receiving 20 oz. cow's milk and 1½ oz. Dextri-Maltose with Vitamin B, a significant increase in iron and copper takes place.*

---

* The desirable iron intake for children according to Rose *et al*, is 0.76 mg. per 100 calories. Infant of 1 month (8¼ lb.) and infant of 3 months (11¼ lb.), both require 50 calories per lb.[6]

[1-6] *Bibliography on request.*

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# KENTUCKY MEDICAL JOURNAL

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## THE COMING MURRAY MEETING

Preparations are rapidly assuming definite shape for the Eighty-Third Annual Meeting of the Kentucky State Medical Association, which will convene at Murray, September 11-14.

The Murray State Teachers College, at which the sessions will be held, is one of the best equipped and most beautiful normal schools in this section of the United States. The physical plant is valued at more than a million and a half dollars. The enrollment ranges from 1,000 to 1,500 per semester. The buildings are seven in number: An Administration Building, donated by Calloway County; a Liberal Arts Building; a beautiful Library Building; a Training School Building; an Auditorium, with a seating capacity of 4,000; and Dormitories for both men and women. The College is accredited with "A" standing in the American Association of Teachers Colleges, the Southern Association of Colleges, and the Association of Kentucky Colleges and Universities. It is a member of the largest athletic conference in the world, the Southern Inter-Collegiate Athletic Association.

The first President of the Murray State Teachers College was Dr. John W. Carr. Its second chief executive was Dr. Rainey T. Wells. Dr. Carr is now serving temporarily as President until such time as Superintendent of Public Instruction James H. Richmond, President-Elect, can assume the full duties of the position.

The City of Murray, with a population of 4,000, has two modern hospitals, a hosiery mill, an up-to-date hotel, a commercial milk plant and several tobacco factories. Situated in what is known as the Purchase, it is linked by hardsurface roads with all of Kentucky and adjoining States. The hotel facilities, coupled with those afforded by the College Dormitories, which will be open to visitors during the meeting, assure ample accommodations for all who may attend.

Apart from its other attractions, Murray has the distinction of being the birthplace of the man who is now recognized as the inventor of the radio—Nathan B. Stubblefield. Stubblefield's first public demonstration of his invention took place in 1902, following experiments covering a period of ten years. This was some considerable time before Marconi first announced his discovery to the world. But several years before the first public demonstration, Stubblefield gave an exhibition of his ability to broadcast and to receive the human voice without the medium of wires to the members of the family of Dr. Benjamin B. Keys, who is chairman of preparations for the entertainment of visitors at the Murray Meeting in September.

Dr. Keys distinctly recalls that Stubblefield came to his home one morning in the year 1900 or earlier, bringing certain crude instruments which he called "a wireless telephone". Two iron rods were forced into the ground in Dr. Keys' front yard and wires were attached to ear phones and other appliances. A child counting and playing a harmonica was distinctly heard. Puzzled, they were lead by Stubblefield across a hill and down a dale for perhaps a mile. There they found Stubblefield's little son, Bernard, lying on his stomach and broadcasting his music into the mouth of a huge horn, crossed with wires and other "contraptions".

The later history of Stubblefield is tragic. With fame and fortune apparently in his grasp, he went to New York, Philadelphia and Washington. In 1902 he successfully broadcast from the "Steamer Bartholdi" to the banks of the Potomac. This was the first time the human voice was ever broadcast over water to shore. What happened after that is shrouded in more or less mystery. He applied for patents, but never obtained them. His friends think that he was inveigled out of the fruits of his inventive genius. He died in poverty in Calloway County, near Murray, in 1928.

## THE PRELIMINARY PROGRAM

In this issue of the JOURNAL appears a preliminary program, in skeleton form, for the State Meeting at Murray, September 11-14. With a view to ascertaining the subjects presently of widest and most general interest to the Profession, letters have been sent to members in various parts of the State, requesting expressions as to their preferences. The tentative program submitted reflects the replies so far received. The Program Committee is anxious to have these expressions as general as possible and to that end, is asking for the cooperation of members throughout the State.

## SCIENTIFIC EDITORIAL

### ALARMING NEUTROPENIAS

Too much emphasis cannot be placed on the importance of the work of Henry Jackson, Jr., of Boston, and his co-wokers, whose product Pentnucleotide has proven of such value in the treatment of severe neutropenia. While devised originally to control the disease "Agranulocytic Angina" it has been used with astounding success in a large group of cases of different clinical character but having depressed white blood counts. Prominent in the group are the leucopenias accompanying sepsis associated with the pyogenic organisms. These may occur in many infections that seem of an innocent nature whose true characteristics are revealed only by a study of the blood; osteomyelitis, carbuncles and erysipelatous lesions being prominent in this group. In pneumonia in infants a low count is frequently found in the cases that terminate fatally. Pentnucleotide has been a great boon in elevating these counts to normal levels and producing the leucocytosis needed to combat the infection. In the chemical neutropenias such as benzol poisoning and in post-arsphenamine reactions it has called forth a bone marrow response with the production of granular leucocytosis and the relief of symptoms.

As the whole treatment consists of an intramuscular injection, once or twice a day, depending on the severity of the illness, it cannot help but appeal to the average doctor. In the treatment of agranulocytosis, malignant neutropenia, or granulocytopenia (all the same disease) it has entirely replaced more complex and difficult clinical methods of attack, such as X-ray exposure of the long bones, blood transfusion, etc. Here, as in most therapeutic measures in medicine, time is an element, and Jackson believes that the cases treated early have a better chance of recovery. Occasionally the younger forms of the granulocytes, i. e., the stem cells, myelocytes and young polymorphs appear in 48 hours after treatment. Usually they appear later, the great majority of cases showing the maximum response on the fifth day. Formerly this group of diseases had a mortality of 90 to 100%. In a recent personal communication from Jackson he states "that at present the series is approximately 90 cases with a mortality of about 30%," certainly a vast improvement over the old statistics. He adds the general word of warning that some of these cases which now seem cured may die in a subsequent attack, in spite of Pentnucleotide, or any other form of therapy. For that reason the supposedly recovered cases must be watched very carefully over a period of months, having repeated blood counts. Women are especially prone to have a depressed count at the time of menstruation. The fact that this disease tends to recur is one of its fundamental characteristics and is in no sense a criticism of this form of therapy which seems to be one of the great recent American contributions.

MORRIS FLEXNER, M. D.

## OFFICIAL ANNOUNCEMENTS

### PRELIMINARY PROGRAM OF THE EIGHTY-THIRD ANNUAL MEETING KENTUCKY STATE MEDICAL ASSOCIATION

MURRAY

SEPTEMBER 11, 12, 13, 14, 1933.

Tuesday, September 12.
7:00 A. M. to 8:30 A. M.

Dry Clinic.

Tuesday, 9:00 A. M., September 12.

Call to order by the President.
Invocation.
Address of Welcome.
Response to Address of Welcome.
Installation of President.
Report of Committee on Arrangements.

SCIENTIFIC SESSION

Tuesday, 10:00 A. M., September 12.

1. Contagious Children's Diseases:
    a. Scarlet Fever.
    b. Diphtheria.
    c. Poliomyelitis.
2. Anemias in Children.
3. Early Diagnosis of Tuberculosis.

SPECIAL ORDER AT 12:00 M.
Oration in Surgery

Tuesday, 2:00 P. M., September 12.

1. The Acute Abdomen:
    a. Visceral Perforation.
    b. Intestinal Obstruction.
    c. Acute Appendicitis.
2. Traumatic Injuries to the Spine.
3. Dislocation and Fractures of the Elbow.
4. Cancer of the Breast.

PUBLIC MEETING AT 8:00 P. M.
Tuesday, September 12.

President's Address.
Annual Oration.

SCIENTIFIC SESSION

Wednesday, September 13
7:00 A. M. to 8:30 A. M.

Dry Clinic.

Wednesday, 9:00 A. M., September 13.

1. Obstetrical Symposium.
    a. The Tuberculous Pregnant Woman.
    b. Management of R. O. P. Positions.
    c. Management of Postpartum Infection.
2. Management of Incomplete Abortion.

3. Hyperemesis Gravidarum.
4. Indications for Cesarean Section.

Wednesday, September 13.
SPECIAL ORDER AT 12:00 M.
Oration in Medicine.
Wednesday, 2:00 P. M., September 13

1. Newer and Better Methods of Diagnosis:
    a. Liver Functions as Altered in Disease.
    b. Kidney Functions as Altered in Disease.
    c. Pancreatic Functions as Altered in Disease.
2. The Significance of Cardiac Pain.
3. The Modern Treatment of Pneumonia.
4. Certain Botanical Remedies upon whose effect our Fathers Depended and were rarely disappointed.

SUBSCRIPTION DINNER AT 6:30 P. M.
Wednesday, September 13.
For members of the Association, Wives, Friends and Guests.
SCIENTIFIC SESSION
Thursday, 9:00 A. M., September 14.

1. Cancer of the Colon.
2. Colitis.
3. Orthopedic Paper.
4. X-ray Paper.
5. Otitis Media and Its Complications.
6. The Relation Between the Doctor and Patient, with the Best Method of Maintaining the Confidence of the Patient and Family.

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**Congestive Heart Failure.**—Harrison and his associates draw the following conclusions from their observations concerning the mechanism of the production, in persons with cardiac disease, of dyspnea on mild exertion: 1. A decrease in vital capacity is important in two respects: alone it lowers the respiratory reserve and thereby predisposes to dyspnea, and it increases the resting ventilation through vagal reflexes from the lungs and hence lowers the respiratory reserve still further. 2. Afferent impulses from the moving muscles are a factor in the production of dyspnea because they cause reflex increase of the ventilation during the exertion. 3. Reflex stimulation of respiration, because of increased pressure in the right side of the heart and in the cardiac ends of the great veins, is of especial importance: (1) In some cases, venous pressure is higher than normal at rest and this increases the resting ventilation; (2) venous pressure rises more than normally during exertion, and hence the patient with cardiac disease has greater than normal ventilation during exertion, and (3) the venous pressure, in contrast to its behavior in normal subjects, remains elevated after exertion, and therefore the ventilation in patients with cardiac disease also remains elevated longer than normal after cessation of exercise.

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## ORIGINAL ARTICLES

### AGRANULOCYTOSIS *

CARL H. FORTUNE, M. D.
Lexington

From the Medical Section of the Lexington Clinic

Agranulocytosis is not an anemia, but I think that its inclusion in a symposium on anemias is quite appropriate. The nature of this condition is so little understood that the question has been raised whether it deserves a place as an entity at all, but the bulk of the evidence places it as a disease of the blood forming organs. Attention was first attracted to it ten years ago in Germany by Werner Schultz. During the next few years scattered cases were reported abroad and in this country, but recently reports have come in astonishing numbers from all sections. Much has been written on symptomatology, diagnosis, etiology and treatment, but we are still far from a complete understanding or satisfactory method of handling this condition. As might be expected many different names have been suggested for it, of which those in commonest use are probably agranulocytosis, agranulocytic angina, indiopathic neutropenia and malignant neutropenia. It is the purpose of this paper merely to present the salient facts which have been derived from the mass of work done by many students.

#### SYMPTOMATOLOGY AND CLINICAL COURSE

As originally described agranulocytosis was characterized by a severe ulcerative sore throat, extreme malaise and a fall of the white blood count to a very low level with practically complete disappearance from the circulating blood of the polymorphonuclear leukocytes. Most of the cases were in middle-aged women, there was often slight jaundice, there was a rapid course and a very high mortality. Later the scope of the disease was much broadened. It was recognized that inflammatory lesions might occur on other mucous surfaces than the throat and that there might be no ulcerative lesions but instead abscesses. Finally cases have been reported in which no localized inflammatory lesion was demonstrable. One characteristic is common to all these cases, practically complete disappearance of the polymorphonuclear neutrophile cells. The red blood cells, however, are relatively unaffected and the platelet count is usually unchanged.

Two important observations have added much to our knowledge of the clinical course of this disease. Rutledge, Hansen-Pruss and Thayer had the opportunity to watch a patient with recurring attacks of malaise associated with almost complete disappearance of the polymorphonuclear cells and the occurrence of ulcerations in the mouth. The attacks began at the age of two and a half years and recurred about every three weeks. At the time of their report the patient was nineteen years old. Between attacks the white blood count would return to normal, but the white cells showed reduced viability and motility. This relapsing characteristic has been noted repeatedly in agranulocytosis and it would seem that this case is a mild form of the disease and that there may be many mild relapses preceding or following a severe attack of agranulocytosis.

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*Read before the Kentucky State Medical Association at Louisville, October 3-6, 1932.

The second observation was made by Roberts and Kracke, who followed a patient with daily blood counts through an attack of agranulocytosis, recovery and a second attack. They showed that the polymorphonuclear leukocytes practically disappeared from the circulating blood four days before clinical onset of symptoms. This would indicate that the disease is primarily of the blood forming tissues and that the infection is a secondary condition. This refutes the earlier contention of certain writers that the agranulocytic blood picture is simply the result of a bone marrow exhausted by infection. Balbridge and Needles have pointed out the frequent occurrence of mouth lesions in other conditions associated with leukopenia, such as poisonings from arsphenamine, radium, x-ray, trinitrotoluene, benzene, mustard gas and phenylhydrazine; diseases such as aplastic anemia, acute aleukemic leukemia, typhoid fever, sprue and infectious mononucleosis. They conclude that it is not at all remarkable that a severe stomatitis or angina should follow the extreme reduction of the white blood cells seen in agranulocytosis.

### Pathology and Etiology

Outside of the bone marrow findings the autopsy has thrown little light on this condition. Rose and Houser report a wide-spread necrosis of the arterioles and venules in one case, but I find no other similar reports to indicate this as a characteristic finding. The usual findings are those of an acute infection with extensive necrosis in the local lesion—without polymorphonuclear infiltration.

There is a radical difference in the reported bone marrow findings. Most of the writers, including practically all the earlier ones, report a bone marrow deficient in, or even practically devoid of, the granular cell forming elements. Fitz-Hugh and Krumbhaar report a case, however, with a hyperplasia of the myeloid elements, but an absence of mature granulocytes. They hold that there is an interference with the maturation of these cells analogous to the failure of maturation of the red cells in pernicious anemia. The tremendous outpouring of immature white cells noted during recovery by Fitz-Hugh, and also observed in a case under my care, would be in line with this conception.

There has been disagreement as to whether there is increased destruction of circulating white blood cells. Flexner, who transfused an agranulocytic patient with 375 cc. of blood from a donor with a white count of 25,000, found no polymorphonuclear cells in a smear taken the next day. This would indicate that such destruction does occur.

Concerning the causative agent we know nothing. The early work of Lovett directed attention toward B. pyocyaneus, but its causal relationship has not been demonstrated. Recent work by Fried and Dameshek has shown that a condition simulating agranulocytosis can be produced in rabbits by varying inoculations with the organism Salmonella Suipestifer. Pepper suggests the possibility of allergy as a causative factor, but adds that this is only an assumption for which he has no proof. While these studies might indicate an infectious origin, we must conclude that the agent producing the bone marrow change in human agranulocytosis is entirely unknown. The ulcerative lesions may be due to any of a variety of organisms and are probably the result of secondary invasion.

### Differential Diagnosis

The differential diagnosis of agranulocytosis may in certain cases be difficult. An acute septicemia with terminal exhaustion of the bone marrow may closely simulate this condition, and it seems that certain of the cases of so-called agranulocytosis in the literature are of this sort. The differential point is the fall in the leukocyte count preceding the infection which occurs in agranulocytosis. Unless blood counts are made early in the illness, differentiation may be impossible.

A second condition which may be confusing is aplastic anemia. The red cell count, as already stated, is usually unaffected in agranulocytosis. In certain prolonged cases a moderate anemia may occur, but the platelet count is usually normal and hemorrhagic tendencies are less common in agranulocytosis.

Acute aleukemic leukemia is a condition which may baffle the most careful investigation. Blumer asserts that in certain cases of aleukemic leukemia with terminal infection, differentiation is possible only by autopsy. The presence of immature cells in the blood during the stage of low count may be helpful in certain instances.

Careful history is most useful in ruling out the poisons, already mentioned, which may produce a blood picture simulating agranulocytosis. In certain poisons other effects than those on the blood may be noted, and thus a clue found to the true nature of the condition.

### THERAPY

The treatment of agranulocytosis has been in almost as great a state of confusion as the etiology. X-ray has probably been more widely used than any other agent, and the results with it are somewhat more favorable than with other methods available until recently. Transfusion was resorted to frequently but without great benefit. Arsphenamine was used, but there was little logical reason for its use and the results were not encouraging. Many of the cases which recovered showed abscess formation , as did one case under my care, and this led to the use of sterile abscesses as a therapeutic measure, but little benefit was noted. The relative inefficiency of these methods is well shown by the compiled mortality statistics in Doan's article.

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|---|---|---|
| Untreated | Mortality | 90%+ |
| Miscellaneous therapeutic measures | ” | 74% |
| Arsphenamine | ” | 72% |
| Blood transfusion | ” | 64% |
| Irradiation | ” | 53% |

A new approach came with Rezinkoff's use of adenine sulfate on the theory that products related to nuclear material would stimulate the bone marrow to form white blood cells. Shortly after this Jackson, Parker, Rinehart and Taylor brought out a preparation of pentose nucleotides which was placed on the market under the name of Nucleotide K 96, later changed to Pentnucleotide. The early results were encouraging and Doan, in the paper already quoted, reported a mortality of 25% in 44 cases. Jackson, Parker and Taylor have just published a report on 54 cases of true agranulocytic angina with a mortality of 30%. They further note that the rise in blood count occurs regularly on the fifth day after treatment is started, so that there seems to be a specific action of the therapeutic agent somewhat analgous to liver in pernicious anemia. Relapses responded favorably to treatment and in most cases the improvement was steady and consistent. These results are so far superior to anything previously reported that they hold out new hope of a successful handling of agranulocytosis.

### SUMMARY

1. Agranulocytosis is an acute febrile disease, characterized by the almost complete disappearance of the white blood cells from the circulating blood before the onset of clinical symptoms.

2. The fundamental pathology seems to be an interference with the production of mature granulocytes by the bone marrow. The etiology is unknown.

3. Until recently treatment has been largely unsuccessful, with x-ray and blood transfusion holding out greatest hope. With the introduction of pentose nucleotides an agent is at hand which seems to be far superior to anything previously available. Even with this agent agranulocytosis remains a serious condition with a mortality of around 30%.

### DISCUSSION

**Morris Flexner**, Louisville: Dr. Fortune's most excellent paper has brought our existing knowledge of this disease right up to the last minute. At the close of his paper he mentioned what I consider to be the most significant work that has been done on this subject in this country or anywhere else, and that is Jackson's work. Until Jackson's discovery of the use of this Nucleotide, Pentnucleotide as he calls it now (K 96 was the name of it originally), the mortality ranged from 70 up to 100. In my own series of six cases my mortality has been 100 per cent, but I have not, unfortunately, seen any cases since this new product has been on the market.

Every man who has studied this disease and seen two or three cases has made some suggestion as to what he thought was the best term for it. There are many of them which are good. Roberts came out with agranulosis, and then granulopenia. Krumbhaar called it pernicious leucopenia, to correspond with pernicious anemia, which is an excellent term, because not only are the granulocytes diminished, but the lymphocytes as well.

I saw a case with Dr. A. O. Brennan; afterwards Dr. Geo. Hendon was associated with the case. It came into the hospital on the 31st of May. At that time the patient had a white count of 700 white cells, 94 per cent of which were lymphocytes. In the afternoon of the same day the white count had dropped to 400, with 100 per cent lymphocytes.

Adenine sulphate was started immediately in this case. The first two days she received a half a gram, and the second day a gram; the next day a gram. Along with that she was given liver, x-ray, two transfusions, venoclysis and calcium gluconate. This was before the days of the last paper of Jackson's. We gave her everything which at that time had been claimed to be of any assistance in the treatment of this disease.

She got down to 111 white cells, 100 per cent lymphocytes. Then on June 4, which, if you figure, is the fifth day of treatment, the white cells began to rise. She got 1,111 white cells and we felt very much encouraged. In the afternoon the white count was practically the same thing (total neutrophil per cent of 24). The next day the count had gone up to 4,911; the next day, June 6, 20,300, and some myelocytes had started to appear in the blood. The next day 25,600, with a tremendous neutrophilic response.

In spite of that, there was absolutely no clinical improvement in this patient and she went ahead and died as a patient does who has 100 white cells, all lymphocytes.

I feel that we should be very proud of this work of Jackson, because while this disease is of German description and origin, it look as if the solution of the thing is really coming in this country. The fact that the mortality in the last series of cases has been reduced to 30 per cent I think is extremely encouraging.

If we get these cases early I think we can do something with them. In his series that he reported, the average time that he saw these cases was 7.2 days after the disease started, which is a long time. It is perfectly possible, if the disease is treated earlier, that the mortality may be very much less than 30 per cent. Of course, the great danger, as Dr. Fortune has mentioned, is relapse. There are one or two cases on record of relapse even after a year, the patient apparently having been cured.

**George A. Hendon**, Louisville: I regret very much that on account of lack of time Dr. Flexner was unable to relate the circumstances under which this peculiar rise of leukocytes occurred in Dr. Brennan's case. While there is nothing encouraging yet, I believe there is some value in considering this particular factor in that case. I wish to say that this rise began coincidently with the administration at the physiological rate of delivery a mixture of 10 per cent glucose in Ringer's solution, with the addition of gluconate of calcium. This patient received in each twenty-four hours during the administration of this treatment, approximately 80 grains of gluconate of calcium in each 24 hours, and I wish to repeat for emphasis that with the beginning of that treatment the white cells began to multiply.

I merely contribute that in order to amplify the record and to present another angle from which this condition may be studied. The one that impresses me the most is that the condition of the patient is, in agranclar cytosis, not due to the absence of white cells, because this patient proceeded clinically in a downward course after the white cells began to multiply, and the result was the same. However, it opens up a new field for investigation.

**Louis Frank**, Louisville: We have had an opportunity of seeing three cases of agranulocytosis in conjunction with some of our medical con-confreres. One case we saw with Dr. Rowan Morrison, which made a recovery, if I mistake not, and the patient is still alive; she had repeated transfusions and radiation treatmest.

We had an opportunity of seeing another case with Dr. Fulton some months ago, which case has had a relapse since, but again showed improvement and apparent recovery under the previous plan of treatment with nucleotide. The first time she came into the hospital the treatment consisted of transfusion and the administration of adenine, which is a nucleotide. She showed very rapid increase in the cells following the administration of adenine, following, in fact, each administration. The improvement in cell count invariably begins 4 to 5 days following beginning of treatment regardless of the duration of the disease. Whether the improvement was as rapid as the one shown in this graphic chart I am not able to say, but you will note that it began in the usual time following the nucleotide. Following the relapse, in our own case, I think the administration of one or two doses of adenine again caused a rise in the polymorphonuclear cell count and the patient at the present time, though still under observation, is apparently well.

I believe that in nucleotides, from our own observation and the recent reports in the literature, we have a remedy that should be used, and can be easily obtained and will undoubtedly show results in the treatment of agranulocytosis. Jackson's last report published in September cites 54 typical cases treated with nucleotide, 70% of whom recovered. This nucleotide is a pentose nucleotide and is to be obtained through most any druggist, though put on the market by Smith, Kline & French of Philadelphia, under the direction of a committee of the Harvard Medical School.

**Rowan Morrison**, Louisville: This is an interesting disease, and I feel that a great deal has been determined about it from the studies on the nucleotides by Jackson. I think it well behooves physicians to consider this thing from the fundamental basis as far as we can get into it from the studies that have been done by Jackson and a great many men who have taken it up. I believe in the next few years a great deal of progress will be made in the treatment of this terrible condition. When they can produce 74 per cent of relief by nucleotides, we certainly have something that is quite an advance over the former treatment.

**Carl H. Fortune** (In closing): One thing I wanted to mention in regard to the therapy is that the various therapeutic agents which have seemed to have any effect in the treatment of this condition have been those which had some stimulating effect on the bone marrow. X-ray, when used, is used in small enough doses to be stimulating, and adenine sulphate and other measures which have been used are all measures to act on the bone marrow and stimulate the formation of white cells. Of these, the published work seems to indicate that Nucleotide K 96 or Pentnucleotide, as it is now called, is the most effective.

In that connection I would like to mention a thing which I did not bring out in the paper because I restricted myself to the true agranulocytosis—in the secondary conditions where there is a fall in the white count secondary to a sepsis, a poison, or something of that sort, this agent has been found equally effective. In fact, in the whole series presented by Jackson in his last article, counting all the conditions where there was a fall in the white count, the mortality rate was only 24 per cent; 76 per cent of the patients recovered, which is a little better than the mortality rate in true agranulocytosis.

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## LYMPHATIC LEUKEMIA*

T. J. Marshall, M. D.
Paducah.

Since Virchow, in 1845, described and named leukemia, there have been a great deal of time and study devoted to the anemias but the etiology of lymphatic leukemia remains a mystery and the treatment unavailing.

While lymphatic leukemia is seen more often in adult practice and may be either acute or chronic, due to the short time allotted this paper, only acute lymphatic leukemia as occurring in children will be considered, as the chronic form of the disease in children is much less common.

Anemia is frequently encountered during childhood, but some other forms of anemia are more common than are the leukemias. However, of the leukemias, lymphatic leukemia is the type of the disease most often seen by the pediatrician. Wallstein and Bartlett found, out of a total of 24,546 admissions to the Baby's Hospital in New York, 14 instances of acute lymphatic leukemia and 1 of myelogenous leukemia.

It was not until 1891 that Ehrlich distinguished two types of cells in leukemia, namely, granulocytes which are granular cells of bone marrow origin occurring in the myelogenous leukemia and non-granular cells of lymphatic origin present in lymphatic leukemia.

Gillman states that more females are afflicted than males during childhood, while the reverse is true in adults. I believe the first part of this statement is in conflict with most cases reported.

Acute lymphatic leukemia resembles the acute infectious diseases. The onset may be sudden with marked prostration or there may be a more gradual onset with progressive muscular weakness, fatigue, and irritability. The increasing anemia is the outstanding clinical symptom noted. There is a tendency to hemorrhage in the various parts of the body, especially about the mouth and throat, the "Buccopharyngeal Syndrome." The lymphatic system is hyperplastic, the lymph nodes are enlarged, as is the spleen and, to a less extent, the liver. The temperature is irregular and pain is often marked. Or, the course of the disease may be so rapid that death intervenes before marked lymphatic enlargement takes place.

The diagnosis rests entirely on the findings in the blood examination. The red blood cells are reduced to between 1,000,000 and 4,000,000 and the hemoglobin is reduced correspondingly. There is, as would be expected from the tendency to hemorrhage, a marked reduction in the platelets, often 100,000 or even less. The red cells in the smear will vary extremely, (especially in very young patients), in size, shape, and staining, according to the severity of the anemia, and numerous nucleated red cells will be noted as well as a high per cent of the reticulated forms. From the red blood cell picture one gains the impression of any severe anemia.

The outstanding element in the blood picture is the marked increase in circulating leukocytes, 50,000 to 450,000 except in the aleukemic type, with a high per cent of lymphocytes, at times as high as 98%. Not only will the stained smear show the increased number of lymphocytes, but many of the large immature forms are noted. The more acute the disease, the greater the increase in the immature cells. Fragmented cells are found in increased numbers, often as many fragmented cells as whole cells; and their presence in large numbers indicates an increase in leukocyte destruction.

It has only been within recent years that leukopenia has been recognized as occurring in leukemia and during the last few years there is an increasing number of cases reported of lymphatic leukemia without leukocytosis, occurring in children. Evidently this peculiar type of the disease is recognized more often.

It is more difficult to satisfactorily diagnose leukemia without leukocytosis and the careful study of the blood is of even greater importance than in leukemia with a high leukocyte count. In the aleukemic form the leukocytes may increase suddenly, or in leukemia there may be a sudden fall in the number of leukocytes.

The examination of the blood will show an increase of immature leukocytes. The tendency to spontaneous hemorrhage is more marked in leukemia with leukocytosis and the marked anemic appearance of the patient with the nutrition fairly good should cause the physician to strongly suspect the true condition.

Syphilis and tuberculosis should always be ruled out in all cases of anemia, by the Wassermann and intradermal tests. While the clinical picture of syphilis, tuberculosis and leukemia may closely resemble one another, the lymphoid hyperplasia is usually more marked in leukemia. Leukemia may be confused with anemia due to chronic infections, as malaria or nutritional disease, early aplastic anemia, Hodgkins Disease, secondary anemia due to neoplasms, an over whelming septicemia, the various splenic anemias or purpura hemorrhagica.

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*Read before the Kentucky State Medical Association at Louisville, October 3-6, 1932.

Acute infectious mononucleosis is characterized by an increase in the leukocytes, enlarged and tender spleen and fever, but is not to be mistaken for leukemia as there is an absence of anemia, the tendency to spontaneous hemorrhage is absent, there is less increase in the lymphocytic element in the blood and the course is brief with a rapid recovery.

The course of lymphatic leukemia in children runs a rapid, downward course and usually terminates fatally within two to eight weeks. Occasionally a child may live four to eight months after the diagnosis of lymphatic leukemia is made.

Post mortem reveals enlargement of the liver, spleen, and all lymphatic glands. The lymph nodes are discrete, soft, white, homogeneous with thin capsules and there is no fibroses nor caseation.

There has been no method of treatment found that will alter the fatal outcome of lymphatic leukemia: Benzol is strongly toxic to the circulating leukocytes, therefore, after the administration of this drug, there may be a reduction in the leukocytes, but the anemia increases with the tendency to hemorrhages increased, as well as the danger from the toxic effects of Benzol to the liver and kidney, and often severe gastro intestinal upsets are produced by this drug. Arsenic may cause a temporary improvement. X-ray and radium are said to be contraindicated in acute lymphatic leukemia and removal of the spleen has not influenced the termination of the disease. Blood transfusion causes the most striking temporary improvement noted. Opiates for the relief of pain and hemorrhage may be indicated.

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**Sore Throat Due to Streptococcus Epidemicus.**—Pilot and Rosenblum made a bacteriologic study of the infections of the throat in children during the winter and spring of 1931, from January to May. They found that 9 of 102 children with sore throat yielded Streptococcus epidemicus; 50 others yielded ordinary hemolytic streptococcic. The sore throat due to S. epidemicus was sporadic and not related to the supply of milk. The clinical picture of the patients with tonsillitis due to S. epidemicus was similar at the onset to that of the patients with ordinary hemolytic streptococcus infections, but complications and sequelae were more common in the former. The greater frequency of complications may be due to the capsules and the mucoid character of S. epidemicus, properties that have been associated with added virulence and aggressiveness.

# INDICATIONS IN ANEMIA FOR SURGERY OF THE SPLEEN*

Austin R. Quigley, M. D., F. A. C. S.

Maysville.

There are certain types of anemia and blood dyscrasias in which there are definite indications for surgery of the spleen. The development of surgery of the spleen for such conditions is a definitely modern procedure. Its evaluation in the absence of positive knowledge of the function of the spleen in health and disease has largely been through empiric successes and failures. The operation of splenectomy has so far been made in many hundreds of instances in a wide variety of conditions, yet notwithstanding the great advances made in this particular line of surgery, there are yet many surgeons unacquainted with these advances. As a result, there are many cases in which splenectomy is indicated, but which are not recognized, nor is the proper treatment undertaken as a result.

Before considering the particular types of anemia to which the spleen seems to be particularly related, it might be well to renew our acquaintance with certain of the principal anemias. Anemia is a condition in which the blood is deficient either in quality or quantity. The causes of anemia are usually of two classes: 1st, conditions which produce anemia by defective blood production; 2nd, conditions that produce anemia by increased blood destruction or by blood loss through acute or chronic hemorrhage.

The anemias produced by defective blood production are: aplastic anemias, secondary anemias, anemias dependent on bone marrow growth and chlorosis. The principal anemias produced by increased blood destruction, or blood loss, are the acute toxic hemolytic conditions, hemolytic jaundice, Gaucher's disease, splenic anemia (Banti's disease), and the other chronic spleno-megalies, pernicious anemia, and the acute hemorrhage.

Splenic enlargement often to a very remarkable degree is present in types of anemia and blood dyscrasia in which splenectomy is indicated. It cannot be too strongly stressed that it is the complete blood picture which is the decisive factor in the decision for or against the removal of the spleen in any given case. It will be found in a case of marked anemia with splenic enlargement that if the bone marrow is not capable of throwing red cells in sufficient numbers into the circulation, splenectomy will not produce results. On the other hand, as in purpura where the blood platelets are chiefly at fault—either deficient or entirely absent—the removal of a comparatively small and unpalpable spleen may produce a very striking recovery. It is, therefore, necessary for us to definitely classify the data revealed by blood examination before determining that splenectomy will be a thoroughly rational and probably a successful undertaking. A reticulocyte count, as well as a platelet count, are of great import before operation is decided upon.

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*Read before the Kentucky State Medical Association at Louisville, October 3-6, 1932.

Splenectomy is commonly an operation of choice, and, again let us stress, should only be made after a thorough study of each individual case and a complete blood examination. This is imperative not only in determining the probable diagnosis, but also as a proper guide to the most opportune time for surgical interference. Patients should certainly be in the best general condition possible.

The more common conditions in which splenectomy offers real promise of relief are splenic anemia (Banti's disease), hemolytic jaundice, chronic purpura, and the acute traumatic spleen.

Splenic anemia has been defined as an intoxication of unknown nature, characterized by great chronicity; primary progressive enlargement of the spleen, which cannot be correlated with any known cause; anemia of the secondary type, with leukopenia; a marked tendency to hemorrhage, particularly from the stomach (esophagus) an in many instances a terminal state with liver cirrhosis and jaundice. It is the late stage of anemia, that is, the stage in which there is secondary involvement of the liver, as manifested by evidences of portal obstruction and hepatic insufficiency, that today is commonly designated as Banti's disease. Strangely enough, in the presence of an enlarged spleen and associated anemia, the diagnosis of this syndrome rests upon the absence of any known cause. If the cause of the splenomegaly is determined, the diagnosis of splenic anemia is excluded. The course of the disease in which operation is not made is progressive without any tendency to abatement and the patient usually dies in a few years as a result of recurrent excessive hemorrhages or hepatic insufficiency. The first manifestation of this condition is very often discovered by the patient or in a routine examination, as enlargement of the spleen, and in some instances the spleen attains considerable size without other recognizable evidence of the disease. Commonly, however, there are changes in the blood by the time the patient presents himself for examination. There is usually a secondary anemia of varying degree, and an extreme poikilocytosis: leukopenia with a lymphocytosis. However, the leukocytes may be normal in number or slightly increased. The patient usually has one or more copious hemorrhages from the gastro-intestinal tract usually from the esophagus, 59% of cases in one large series. Hemorrhages are common in the late stages, although sudden severe hemorrhage from the gastro-intestinal tract may be the patient's first warning that he is sick. In spite of the most gratifying benefit derived from splenectomy, even in many advanced cases as evidenced by improvement of the blood and the general health, and by prolongation of life, the recurrence of gastro-intestinal hemorrhage in a large number of cases is a discouraging feature.

Hemolytic jaundice: In this disease, jaundice is by no means the outstanding feature. Anemia is the characteristic feature and jaundice may be very variable and often is extremely faint. The absence of bile in the urine, its presence in the stools, a more or less profound anemia, the fragility of the red blood cells when tested with hypotonic saline solution; the positive indirect Van den Bergh reaction; the moderate enlargement of the spleen, and, most important of all, the presence of large numbers of erythrocytes, in the blood indicate an active production of erythrocytes, which are being destroyed in great numbers. Two types of this disease are usually described. The familial or congenital and the acquired. The blood changes in each type are essentially the same, however, in the acquired type, the blood destruction is much greater and more acute, and the prognosis is more grave. Splenectomy seems to be about equally effective in both types. The fragile red cells fall an easy victim to the reticulo-endothelial cells in the spleen and are destroyed in large numbers. The demonstration of numerous reticulocytes in the blood gives us the satisfaction of knowing that the removal of the spleen will permit these young erythrocytes to reach maturity, and further, there is evidence that with the removal of the spleen, the fragility of the red cells is diminished, although it does not entirely disappear. The results of the removal of the spleen in hemolytic jaundice are striking and lasting. The jaundice disappears: the red cells and the hemoglobin increase; the patient gains in energy and well being, which proclaims the fact that the spleen was very active in blood destruction.

Hemorrhagic purpura: Although this condition is the most recent addition to the list of diseases successfully treated by splenectomy, the results are probably the most striking. Purpura hemorrhagic is an idiopathic hemorrhagic disease, characterized by hemorrhage from the mucous membranes, petechiae, and a varying degree of secondary anemia, diminution in blood platelets and usually slight enlargement of the spleen. The two factors which appear operative in determining the hemorrhages, are a congenital weakness of the capillary wall and a marked diminution or absence of blood platelets. The typical blood changes are reduction in the number of platelets; prolonged bleeding time; delayed retactility of the clot; normal coagulation time; and secondary anemia with evidence of normal regeneration of the red cells. The principal indication for splenectomy in purpura hemorrhagica is a definite diagnosis. It is, therefore, extremely important to distinguish this disease from others in which hemorrhagic tendencies are common, such as aplastic anemia, hemophilia and acute leukemia. This can usually be done by correlating the result of detailed blood examination and clinical history. However, diagnosis may be extremely difficult, and this probably accounts for the many reports of poor results in the literature. It is known that removal of the spleen always leads to an increased blood platelet count and it is thought that platelets are formed in normal numbers, but are destroyed by over active phagocytosis in the spleen. In but few diseases in which symptoms are so alarming are the beneficial results of operation so striking as in purpura hemorrhagica treated by removal of the spleen.

Traumatic spleen: Rupture of the spleen is not of infrequent occurrence following injury resulting from blows directly over the spleen. The symptoms are usually those of internal hemorrhage (acute anemia) although in some instances where hemorrhage from the spleen is not profuse, the patient does not show shock and acute anemia. The treatment of these cases where shock and extensive hemorrhage is shown is splenectomy.

It is a fact, in spite of the views to the contrary, that operation on the spleen for the above named conditions compare favorably with those of other major abdominal operations, and, in spite of the common mistakes made in diagnoses, the anemias and blood dyscrasias associated with disorders of the spleen, and amenable to surgery of the spleen can be readily identified, if complete data relative to the blood are correlated with the clinical history.

## DISCUSSION

**W. E. Fallis**, Louisville: I won't take the time to discuss the subject very deeply. Numerous suggestions have been made and lots has been written regarding the blood changes and blood manufacturing mechanism, all of which is a long way from being in a perfect state at the present time.

I think perhaps Dr. Quigley has taken upon himself a big problem in attempting to solve this question, and in this short length of time he certainly has done himself justice. If he selected the subject he certainly selected a deep one, and if someone gave it to him it is indeed a tribute to his intelligence and his ability to handle the problem. I think he has presented it as concisely and perhaps as well as could be done under the circumstances.

I will not try to mention a lot of the data that has been written and is available on the different changes. We have a lot of evidence in the facts that Dr. Kavanaugh presented in his cases of chronic hypochromic anemia with enlargement of the liver, with enlargement of the spleen, and in the beginning the early syndromes that are present in all types of anemia; consequently, the necessity for more careful and more considerable and more direct investigation of the blood pictures to attain a definite, complete and accurate diagnosis before any therapeutic measure can be instituted to relieve the condition.

As I see the subject, there are perhaps four direct indications for surgery of the spleen in anemia, the first of which is traumatic or ruptured spleen with acute anemia. The other three are, chronologically speaking, Banti's disease, which by many is still considered as only a syndrome and not a definite disease, until the later stages when the liver and all other lymphatic tissues become involved; second, hemolytic jaundice; and third, purpura hemorrhagica.

I shall not attempt to describe these in detail, but there are a few simple facts that are peculiar to each particular type that I should like to mention. In Banti's disease it is a rather slow and insidious type, with no apparent outstanding feature existing in the blood picture, a progressive secondary anemia with remission. In the hemolytic jaundice you have an increased fragility test, which perhaps is the outstanding feature. There is also an increased reticulocyte count in this particular disease.

In purpura you have the definite platelet count decrease with a normal clotting time, a reduction of the clot, retraction, all of which go to make up the picture in this type of condition.

Splenectomy is the operation of choice when your diagnosis has been made thoroughly and completely. This is still an empirical procedure, because it is not definitely known whether the removal of the spleen prevents destruction of the red blood cells or whether the abnormal red blood cells would become activated by the presence of the reticular cells in the spleen. In other words, it is not definitely known whether the slight abnormality in red blood cells as to size is the primary issue or whether it is the reticular cells in the spleen itself that destroy the red blood cells, or if they would be destroyed if there was not an abnormality in the red blood cells in this particular condition.

It is a definitely known fact that we can do without the spleen. There are other tissues that do the same function (which is still problematic), it is taken up by some of the other endothelial tissues, and the patient goes on with a normal, active life, though as a rule the longevity is more or less decreased.

**Louis Frank,** Louisville: This is a topic in which I am greatly interested. We have had an opportunity of seeing a number of cases of the various diseases mentioned by the essayist and of having removed spleens in those cases, where we believed it would be of benefit. I dare say the last speaker did not discuss as one of the indications (certainly it is an indication for removal of the spleen) Gaucher's disease, or sarcoma of the spleen. We have recently reported two cases, in the literature of this sort, one, a case of Dr. Grigsby's of this city and one of our own.

I had hoped the essayist would discuss the question of thrombocytopenic purpura or thrombocytopenia. It is really and truly hardly to be classed among the anemias, as I think the essayist said in his paper, but in this disease we certainly have, as the discussor also said, a positive indication, for removal of the spleen. We have now under observation a case of this type in which removal of the spleen, splenectomy, has been discussed, but has not been done because we wanted to try out the effect of deep x-ray therapy over the spleen in this individual, a young girl that we have had under observation now for some three years. Following each radiation the blood platelet count has reacted just the same as it does after removal of the spleen, and you know after removal of the spleen the platelet count will go way above normal. The reaction to radiation is very striking in this case. This patient presents all the characteristics, the anemia, the increased fragility of the blood cells, the increased permeability of the capillavial as can be easily demonstrated by the cuff used to take blood pressure; there is also the alteration in clotting and bleeding time and of course marked diminution in the platelet count.

We have done splenectomy in a number of these cases, and one very striking case I would like to mention a bit in detail. The question came up in our mind as to the causation. This was in a young infant that died following the operation, and autopsy revealed, as did also section of the spleen at autopsy, that this infant had a primary tuberculosis of the spleen, a condition which some authorities have denied. The question came up in our mind whether some such disease must be operated early if you are to get these symptoms subsequently as a sequence of what has previously existed in this organ.

This is a very important paper. I think it is one that the attention of the general practitioner should be especially called to, because many of these cases can be saved. Banti's disease must be operated early if you are to get the best results. After ascites and after the liver is involved you get very little benefit from operation. We had one case of Banti's that had enormous ascites in which, removal of the spleen and a coincident Talma operation seemed to have effected a cure, as the individual is still living some sixteen years after his operation.

## SYMPOSIUM ON THE NEW BORN

# CONSERVATIVE METHODS OF THE TREATMENT OF ASPHYXIA NEONATORUM*

Nora D. Dean, M. D.

Louisville.

Asphyxia neonatorum at the present time is receiving more attention of the scientific investigators than ever before in the history of medicine.

All the leading obstetricians and hospitals are giving this matter serious study. In answer to a questionnaire of recent date, eighteen leading obstetricians and two anesthetists responded with varied accounts of favored methods of obstetrical analgesias and anesthesias. as well as with methods of resuscitation of the new-born. From these letters one gathers that no perfect method of prevention or treatment has yet been worked out.

The complexities of the etiology, make each case a law unto itself. We know that asphyxia of the new-born is produced by one or more of the following causes, namely; mechanical obstructions to the air passages, anatomical anomalies, physiological disturbances producing an imbalance in the exchange of gases in the infant's body, and neurological dysfunctions, undue prolongation of labor, injuries sustained at delivery, improper analgesias and anesthesias, undue chilling of the child, failure to remove the mucus from the naso-pharynx and trachea, constitute the causes of avoidable failure in the majority of cases.

The prophylactic treatment is of much greater importance than the curative. The discussion of the proper conduct of labor as a means of preventing asphyxia neonatorum is not within the range of this paper. There are two simple points, however, worthy of attention. After the delivery of the head and before the shoulders are born, it is well to allow the head to remain acutely flexed with the chin resting on the perineum for a short pause. This position produces a postural drainage of naso-pharynx and trachia, much to be desired.

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*Read before the Jefferson County Medical Society.

The common practice of giving pituitrin in the second stage of labor is a fruitful cause of asphyxia neonatorum. The resulting increase in the violence, frequency and duration of the contractions, brings about a placental ischemia frequently producing a fatal asphyxia.

All medication given for the purpose of producing an analgesia of the mother, should be administered with the consideration of the possible effect on the child constantly in mind. The proper timing of such medication is of prime importance. For example, morphine given too late in labor will inevitably produce asphyxia in the baby, by depressing the respiratory center. Anesthetics pushed too far, or given over a long period of time produces an anesthetized infant with a resulting asphyxia.

When $N_2O_2$ and $O_2$ or $N_2O_2$, $O_2$ and $(C_2H_5)_2O_1$ are being used one may employ the following method: As soon as the baby's head is born the anesthetic is removed and the mother is flushed with $O_2$ to the point of supersaturation, during the pause between the delivery of the head and the extraction of the body. As the shoulders are being delivered $CO_2$ and $O_2$ are given in the ratio of 5% to 95%, and this mixture is administered as long as the cord is pulsating. A method similar to this is used at the Memorial Hospital, Worcestor, Massachusetts.

Mouth to mouth breathing is a valuable method if used by a skilled operator. Much damage may be done by over distention of the alveoli by this method or any other method of inflation or insufflation.

Immersion in warm bath is used in cases not responding to other methods.

All the authorities answering the questionnaire agree that the baby should be carefully protected from chilling, all mucus should be removed either by postural drainage or by catheter. The head should be low as a means of flooding the respiratory center with blood, except in those cases where intracranial injuries are suspected, when all handling should be done with extreme gentleness and the lowering of the head should be studiously avoided. Warmth, rest, and elevation of the head after removing the mucus with a catheter, and mouth to mouth breathing constitute the chief points in the treatment. These causes of intracranial injury are best handled by the pediatricians.

When a baby is breathing, but breathing badly, inhalations of $CO_2$ and $O_2$ are of great value. The ratio of the two gases should be varied according to the response of the baby, as indicated by the changes in color and the rate of respiration.

Most of the authorities agree that inflation as opposed inhalation is dangerous in the hands of any but an expert. Artificial respiration should be rarely necessary. If resorted to it should be done with utmost gentleness. Of all the mechanical devices used for the resuscitation of the new-born, the Drinker Infant Respirator seems to be the one of choice in most hospitals.

Alpha-Lobelin is thought to be of little value by most authorities. It should be used subcutaneously. It is perhaps too drastic to use intravenously.

The whole situation may be summarized on the statement that asphyxia neonatorum depends on the judgement and skill of the obstetrician and the anesthetist.

Out of the last 250 consecutive cases delivered at the Susan Speed Davis Home and Hospital, Louisville, Kentucky, eleven babies were lost. Five of these were premature and nonviable. Three were stillborn, two of which died in utero before onset of labor. One died of congenital anomalies and pneumonia thirteen days postnatal. One died three days postnatal of intracranial hemorrhage. Eleven babies required resuscitation, nine of these lived. One died of intracranial hemorrhage, and one died of anomalies.

The methods of resuscitation were those described above, with the exception of insufflation, artificial respiration and mechanical devices. None of which were used.

We believe the causes of the Infrequency of Asphyxia among the Newborns are as follows:

1. Conservative administration of analgesia in first stage of labor.
2. Slight degree of anesthesia during delivery.
3. Low incidence of obstetrical interference.
4. Avoidance of the use of pituitrin in first two stages of labor.
5. Postural drainage with head on perineum.
6. Removal of all mucus.
7. Protection of the infant from chilling by placing it at once in an incubator.
8. No attempts at resuscitation until necessary.

A table was prepared from the twenty answers to the questionnaire sent out, as to the treatment of asphyxia neonatorum. The author's name and address is given in the first column. The steps in the treatment given by each authority are enumerated in the order in which they appeared in the letters. In the last column are given the generalization made by the author. You will note that the removal of mucus and the avoidance of chilling were mentioned first by the large majority of the doctors.

CHOICE METHODS OF RESUSCITATION FROM TWENTY OBSTETRICIANS AND ANAESTHETISTS

| PHYSICIAN | | | | | | | | | | | COMMENT. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dr. Herbert Thomas<br>Yale University | 0 | Type of anesthetic in 2nd stage labor | $CO_2$<br>$O_2$ | | | | | | | | Do not use any hypo methods. Occassionelly slight compression on chest |
| Dr. David Hillis<br>Chicago, Illinois | 0 | Remove mucus | Artificial Respiration | Tracheal Catheter | $CO_2$ 10%<br>$O_2$ 90% | | | | | | Has never seen Alpha Lobelin serve any good purpose |
| Dr. T. C. Hirst<br>Philadelphia | 0 | Remove mucus | $O_2$ 90-95%<br>$CO_2$ 10-5% | Porger's Method | | | | | | | Reserves Drinker for morphinized or premature babies |
| Dr. O. Dolton<br>Polyclinic, N. Y. C. | 0 | DeLee's and Potter's methods | $O_2$ and $CO_2$ | Flagg's | | | | | | | |
| Dr. E. L. Parr<br>Montclair, N. J. | 0 | Not to remain too long in birth canal | Posture and removal of mucus | Spanking gently | Contrast Bath | Ether sprinkled on back | Artificial Respirat. | Mouth to Mouth | $O_2$<br>Adren. 1:1000 | | |
| Dr. R. R. White, Jr.<br>Boston Lying In Hospital | 0 | Remove mucus | Warm bath | Mouth to Mouth Breathing | $CO_2$<br>$O_2$ | | | | | | Seldom do more than remove mucus |
| Dr. L. E. Prankeothal<br>Michael Reese, Chicago | 0 | Remove mucus | Tracheal Catheter | Contrast baths | Lobelin 1cc | | | | | | Drinker apparatus resorted to in a few cases |
| Dr. E. B. Piper<br>Philadelphia, Pa. | 0 | Remove mucus | Flagg's | | | | | | | | Contrast baths and promiscuous spanking rather silly |
| Dr. Lida S. Cogill<br>Women's Medical College<br>Philadelphia, Pa. | 0 | Remove mucus<br>Warmth | Tracheal Catheter | Inflation with $CO_2$ and $O_2$ | Alpha Lobelin | | | | | | Injections of whole blood and spinal puncture in cerebral hemorrhage |
| Dr. Louise McIlroy<br>Practitioner<br>London, England | 0 | Remove mucus | Catheter #16 | $O_2$ 95%<br>$CO_2$ 5% | Alpha Lobelin 1 cc | Gentle massage of heart | Gentle chest compression | | | | No artificial respiration involving head & spine.<br>No contrast baths. |
| Dr. John Talbott<br>Worcester, Mass | 0 | Remove mucus | $O_2$ 90%<br>$CO_2$ 10% | Mouth to Mouth Breathing | | | | | | | Always Gentleness |
| Dr. B. P. McNally<br>St. Louis, Mo. | 0 | Remove Mucus | Warm blanket | Tracheal Catheter | $O_2$<br>$CO_2$ | | | | | | No spanking<br>No contrast baths<br>No rough resuscitation |
| Dr. Harry I. Shields<br>Toronto, Canada | A | Remove mucus | Warm bath | Artificial Respiration | Rubber Catheter French # 16 | $CO_2$ 5%<br>$O_2$ 95% | | | | | Tracheal Catheter passed with Laryngoscope |
| Dr. Ralph Waters<br>Madison, Wisconsin | A | Remove mucus | Mouth to Mouth Breathing | Inflation with $CO_2$ and $O_2$ | | | | | | | Necessity for resuscitation should become less and less as the uses of analgesics and anesthetics become more perfected |
| John Hopkins Hospital<br>Baltimore, Md. | 0 | Dr. Williams' text, 1930 | | | | | | | | | No comment |
| Dr. Amy Chappell<br>Boston, Mass. | 0 | Remove mucus | $CO_2$<br>$O_2$ | Mouth to Mouth Breathing | Contrast Bath | | | | | | Occasionally use Alpha Lobelin or Adrenalin |
| Dr. J. B. O'Connor<br>Worcester, Mass. | 0 | Pure $O_2$ given to mother as soon as head is over perineum | Remove mucus | Gentle Artificial Respiration | Alpha L. 1/20 gr. Ohio gas Inhaler | $CO_2$ 7%<br>$O_2$ 93% | | | | | Rarely necessary to immerse baby |
| Dr. J. P. Greenhill<br>Chicago, Illinois | 0 | Remove mucus | Drinker Apparatus | Alpha Lobelin | | | | | | | Maintains only simple measures are advisable |
| Dr. Geo. Hanna<br>Frankfort, Pa. | 0 | Remove mucus | Artificial Respiration | M. to M-E cigarette smoke | $CO_2$ 5-10%<br>$O_2$ 90-95% | Trach. Cath. | LaBord's Tongue Traction | Adren. 1:1000 M. 3 | Contrast Bath | | Last 3 not very succesful |
| Dr. R. D. Mussey<br>Mayo Clinic | 0 | Remove mucus | Tracheal Catheter | $CO_2$ 5%<br>$O_2$ 90% | | | | | | | Gentle pressure on chest 16 times per minute |

A - Anaesthetist
O - Obstetrician

## CONCLUSION

It would seem that freeing the air passages of obstructions, warmth and rest are apparently all that are necessary to establish respirations in the non-injured, non-deformed infant. That injured infants should especially have the most gentle handling with warmth and absolute rest.

Thanks are extended to all those who have contributed so generously of their time and information toward this paper. Especially to the authorities for answering the questionnaire, and to Dr. Alice N. Pickett, Dr. James Bruce and Dr. Lee Palmer, for their generous co-operation and untiring energy used in giving advice in the management of the cases at the Susan Speed Davis Home.

# HEMORRHAGIC DISEASES OF THE NEW BORN*

Lee Palmer, M. D.

Louisville.

Hemorrhagic disease of the new-born is a condition occurring in infants shortly after birth, which manifests itself by spontaneous bleeding. The bleeding is usually persistent, profuse, and frequently multiple. It is usually a self limited disease, does not recur and tends to recovery or death within the first twelve days of life.

A great deal of study has been devoted to the etiology of this disease. It has been attributed to syphilis, bacteremia, intoxication with chemicals, trauma, etc., but on careful analysis it is found that, while hemorrhage does occur in these conditions, yet they are not definite causative factors in true hemorrhagic disease of the new-born. It has also been attributed by some to insufficient oxygen available in the tissues; by others to some peculiarity in the tissues of these new-borns or to some obscure infection.

Lambert, Carrel and Brewer, in 1908 reported the first case of hemorrhagic disease of the new-born treated by blood transfusion. This infant, though fatally sick, was immediately made perfectly well. And this remarkable result suggested to these men that there was some primary defect in the blood that accounted for spontaneous hemorrhage which was immediately relieved by blood transfusion. Other men made similar observations and agreed that there was some derangement in the blood clotting factors. Schloss and Cominskey felt that the uncontrollable hemorrhage was due to defective coagulation.

Whipple, in a careful study of this condition, found that delayed coagulation was due to deficiency of prothrombin. We now know this to be true in all cases of hemorrhagic diseases of the new-born. Definite information as to why there should be this deficiency is not available.

The pathology in hemorrhagic disease of the new-born is of little importance, as nothing is found at autopsy except evidence of hemorrhage in different parts of the body.

The clinical picture is a fairly definite one and is easily recognized, especially if the bleeding is external and multiple. The bleeding, however, may be into any of internal organs and not show externally at all, it is then, of course, more difficult to recognize. It occurs in both male and female alike. The onset is within the first week, usually second, third, or fourth day and never after the twelfth day. The amount of the bleeding may be large or small, but it is spontaneous and persistent so that the infant has become exsanguinated before the disease has run its course.

In addition to hemorrhage, these patients present symptoms of anemia, as pallor, feeble pulse, prostration, subnormal temperature, though early they may have fever. Certain cases show icterus probably of hematogenous origin.

The bleeding has been observed in the skin, subcutaneous tissues, from nose, mouth, conjunctiva, vagina, cuts on face and head from forceps injuries. Some of the more important locations of hemorrhage are; first, hemorrhage from the umbilical stump where attempts to retie fail to stop the bleeding, and if stitches are taken, there is additional bleeding from the needle punctures. Hemorrhage into the stomach and intestinal tract (melena neonatorum) is rather frequent in hemorrhagic disease of the new-born. The blood may be vomited or it may pass from the intestinal tract as black tarry stools leaving a pinkish stain on the napkin around the viscid mass, or in recent and large hemorrhages bright blood may pass from the rectum.

There are three possible sources from which this blood may come; first, it may be a bleeding fissure in the mother's nipple; second, from hemorrhage of nose, pharynx, or pulmonary hemorrhage; third, is hemorrhage from G-I tract itself, which is known as true melena. Some of these cases are found at autopsy small ulcers, single or multiple which may be located anywhere throughout the course of the G-I tract. In others, no location is found from which hemorrhage occurred.

## Intra Cranial Hemorrhage

Many men feel that Intra Cranial Hemorrhage seldom results from hemorrhagic disease of the new-born unless it is associated with hemorrhage elsewhere. However, Donald Munro of Boston, in reporting 117 cases of cranial and intra cranial damage in the new-born, states that 16 cases or 14% resulted from hemorrhagic disease of the new-born.

So important is this disease in new-born cases presenting symptoms of intra cranial pressure he stated "If the precaution of determining the presence of, and at once starting treatment of this complication is neglected, and immediate steps are taken to combat the increased intracranial pressure that is of course present, it will be found that this very procedure will promote more bleeding within the cranium, a greater degree of pressure, and death.

The diagnosis is self evident when there is spontaneous, persistent, external hemorrhage occurring within the first twelve days of life, provided syphilis and sepsis are eliminated.

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*Read before the Jefferson County Medical Society.

Hemorrhagic disease of the new born must not be confused with hemophilia, which is a family disease occurring only in the male and usually not until after two years of age, in which tendency to bleeding persists throughout life. The blood examination is practically the same in both these conditions. There is a deficiency in the prothrombin, the clotting time is prolonged, the blood platelets are normal in number, the clot retractility is normal. The bleeding time is normal in hemophilia and usually prolonged in hemorrhagic disease of the new-born. Purpura Hemorrhagica has been confused with hemorrhagic disease of the new-born, but here it is to be remembered there is a definite diminution in the number of blood platelets.

Under the old method of treatment, the death rate of hemorrhagic disease of the new-born was between 70%-80%. Under the present method, that is, blood transfusion if the condition is diagnosed early, the death rate is practically nil.

It is preferable to give the blood intravenously, and theoretically the whole blood method should be better than the citrate method. Practically, however, the citrate method is successful in the experience of many men. If it is not possible to give the blood intravenously, or as a time saving element, 50 cc of blood may be injected intra muscularly. This may be repeated if needed, or if possible, when it is necessary to repeat, it is best to give intravenously .

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**Anisotonic Solutions in Treatment of Disequilibrium of Endocranial Pressure.** Pozzi calls attention to the possibilities of anisotonic treatment in disorders of endocranial pressure, a form of treatment widely used in foreign countries but little known as yet, or at least little used, in Italy. The author discusses first the biologic principles on which this treatment is probably based and then reviews the various morbid conditions in which it is indicated. Then he considers the value of treatment in acute disorders of endocranial pressure following craniocerebral traumatism (diffused cerebral compression and posttraumatic cerebral hypotension) and in disorders of neoplastic origin, in which it appears to be an advantage as a means of adapting patients to an operative intervention; as a mode of treatment of phenomena of acute hypotension that may be observed in the course of the intervention itself, and, finally, as a mode of treatment for postoperative cerebral hypotension due to protracted loss of cerebrospinal fluid from the wound. In view of its harmlessness, he considers this method of treatment deserving of confidence and of wide use in current practice.

# INTRACRANIAL BIRTH INJURIES*

JAMES H. PRITCHETT, M. D.

Louisville.

A few weeks ago a mother, poor, ignorant and sensitive, brought her ten months infant to me for examination and advice. Her story was: After a long hard delivery the baby was drowsy, refused to nurse, had irregular respiration, at times twitching of various muscles and occasionally a shrill cry. This persisted for four or five days and gradually cleared up. On the seventh day a circumcision was done and some of the symptoms reappeared. There was considerable oozing following the operation which subsided in a few hours. Since that time, states the mother, he has been such a good baby, seldom cries. The mother noted as time went on that he failed to notice things and to follow with his eyes bright objects. He was unable to sit alone at eight months, and she states the infant does not seem to know her from other members of the family. The infant had been treated repeatedly by a chiropractor who assured the mother that the infant would be well in a short time. After many of his so-called adjustments, she stopped treatment and sought medical aid.

At first glance one notes the silly grin on the face, the dull eyes, the open mouth, the slow drooling of saliva and the rather spastic movement of the fingers and hands. I explained to the mother in a simple way what I thought had happened and told her of my inability to help the child. She left the office crying bitterly.

The scene as described above is by no means an infrequent one. The late Emmett Holt once said "One of the tragedies of life is the fact that so few of those who are called upon to meet the responsibilities of motherhood and fatherhood have had anything approaching adequate preparation and training." Ehrenfest (J. A. M. A., Jan. 12, 1929) in a paper entitled: Can Intracranial Birth Injuries be Prevented? states, "It has been shown that out of every hundred new-born infants who are born dead or who die shortly after birth, seventy to eighty actually succumb to intracranial lesions." The results of intracranial birth injuries are far reaching in their effects.

In the extensive or severe injury the infant dies at or shortly after birth, in the less severe, many live but are defective either mentally, physically, or both. This would include such conditions as idiocy, athetosis, or improperly called spastic paralysis or Little's disease. In the mild types many such injuries are not recognized and later in life become potential epileptics and behavior problems. The chief etiological factor productive of intracranial birth injuries may be considered under three headings: First, on the part of the infant, such as prematurity and postmaturity, in which not only does the head undergo molding but also submits to a reduction in size brought about by over-riding of the cranial bones at the sutures; also on the part of the infant, hemorrhagic tendency. Second, on the part of the mother, various toxemias, contracted pelvis, long hard labor and frequently spontaneous delivery. Third, on the part of the accoucheur: Not wishing to encroach on the field of obstetrics, we may briefly refer to lack of prenatal care, meddlesome obstetrics, unskilled application of forceps, forced and rushed breech deliveries, and frequently an excessive dose of pituitrin. Lastly, I would emphasize the fact that despite expert obstetrical care a birth injury may result. As the consequence of birth injury there may be a rupture of the cerebral or meningeal vessel causing hemorrhage which may consist of a thin film of blood, which infiltrates the pia-arachnoid, or it may be a large clot which covers one or both hemispheres. The symptoms of such injuries will vary according to the severity and location. In order of their frequency, the location may be given as follows: First, supra-tentorial, A. Over the vertex, B. under the hemisphere. Second, sub-tentorial. Third, intraventricular. Fourth, into the brain substance.

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*Read before the Jefferson County Medical Society.

The supra-tentorial hemorrhages are most frequent over the parietal region. In subtentorial hemorrhage there is usually a tear in the lower portion of the tentorium. Foote (Sou. Med. Jour., June, 1924) has classified the symptoms under two headings: First, the rapid traumatic type. Second, the slow spontaneous hemorrhagic type. Of course, there may be intermediate forms. Also the latter forms may be unrecognized. The symptoms of the traumatic type are due to massive hemorrhages and come on almost immediately after delivery. The infant is in a serious state, the breathing is irregular and labored, the skin is cold, there may be cyanosis. There may be generalized convulsions and death occurs usually within a few hours. In the second type the symptoms come on more slowly. In twenty-four to thirty-six hours after birth the infant becomes lethargic, is drowsy, nurses poorly, the color may vary from normal to slight cyanosis and at times there may be a yellowish color of the body, there is more relaxation and less body movement than normal. The tongue often protrudes as if in thirst, the pupils may be unequal, often muscular twitchings or merely a temor of the lip or chin. There is usually involvement of the eye muscles. Many show increased tension or a board like tenseness of the fontenalle, sometimes a sharp, shrill cry is noted. It is true that frequently some of the above mentioned signs may occur in normal new-borns, but in those cases in which several such symptoms are present, the diagnosis is almost certain. Frequently the bleeding and coagulation time is far beyond normal, especially is this true in those types represented by a hemorrhagic tendency.

With reference to spinal puncture as a diagnostic aid, a word of caution should be given. Such a procedure is not without some danger. I formerly did this test as almost a matter of routine, now I am rather conservative for the reason that in order to do a puncture successfully, that is, to avoid puncturing a venous plexus the infant must be held or bowed in such a manner which may increase hemorrhage. I would be inclined to use spinal puncture more as a therapeutic aid.

From a prognostic standpoint we cannot be optimistic. Promise nothing, expect little, hope much. Treatment can be briefly stated as: First, prophylactic (quoting again from Ehrenfest) "The traumatization of the brain and meninges in labor can be reduced to the possible minimum by absolute non-intervention during labor that is progressing normally, except in the resorting to an episiotomy and truly perineal forceps application to a maximum compressed head." But let our obstetrical friends advise us along this line.

Once our diagnosis is established it is essential that a bleeding and coagulation test be made. In such condition as hemorrhagic tendency the subcutaneous administration of 15 to 20 c. c. of whole blood will increase the clotting time in the infant and tend to check hemorrhage. Immediate treatment means absolute rest and quiet, the infant should not be moved from its bed. It should be fed small amounts by a dropper to the mouth. Often bromides are indicated. Occasionally small doses of morphine are useful. At times heat to extremities; ice cap to head is of value. Concerning repeated lumbar puncture in the treatment of such disorders, we may state that there are two viewpoints, the one which boldly advocates repeated spinal puncture; the other viewpoint, with-holding spinal puncture, claiming it is of doubtful value and that it may displace the coagulum, and increased hemorrhage be the result. I think a happy medium should be struck, that is to say, where punctures have shown their value in a given case indicated by improvement, such procedures may be a life saving measure. On the other hand, when after such a practice, the infant shows signs of becoming worse, it should be no longer used.

Oxygen therapy is of great aid in many cases which show cyanosis. I believe that surgery will be of great help in certain cases when the location of clot or injury can be determined by neurological symptoms. Operative procedure certainly offers us hope in many cases. Frequently the results of surgical interference are brilliant and I am sure that the average parent would much rather take a chance of improving the child's mental and physical condition even though it may be a dangerous proposition, than to face the fact of the infant's clouded mentality through life.

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## INFECTION IN THE NEW BORN*

Philip F. Barbour, M. D.

Louisville.

The infections of the new-born center for the most part about the umbilical stump. That they occur so rarely is indicative of a real inherited immunity for there must be many opportunities for infection when proper care is lacking. Infections do attack babies even in the best hospitals. The stump of the umbilicus may be infected either at the cut surface or through Wharton's jelly. The arteries of the cord have much elastic tissue mingled with the musculature which is poorly nourished with vasa vasorum so that the arteries contract and atrophy very promptly after the cord is ligated. Fibrinous thrombi form and the arteries soon merge into the hypogastric ligaments. It is very unusual for infection to occur in these thrombi but it may cause local abscesses which usually find their way to the surface through the lumen of the artery. They are usually not dangerous though they may have to be opened through the abdominal wall.

Much more important is the infection in the umbilical vein. The current of the blood tends to carry this infection through the veins to the liver or through the ductus venosus directly to the inferior vena cava. If the bacteria pass to the inferior vena cava the multiple foci of infection are spread through the lungs and pneumonia soon ends the picture. If the infection should travel mostly to the liver, then a septic jaundice with the usual septic symptoms, irregular high fever, chills, prostration, soon terminates the case. Rarely the septic phlebitis may extend to the peritoneum with general peritonitis as the mode of exitus.

A most unusual lesion is an infection of a persistent urachus or the omphalomesenteric duct. Pus can be expressed from these yet without any extension of the suppuration to more vital tissues.

Sometimes there will be found an infection of the stump which is confined to the umbilical fossa because it has been sealed off. Less virulent infections may cause only a moist navel, with foul odor and macerated edges. In such cases there will often be found granulomata of varying size which will require appropriate treatment. Such lesions predispose to umbilical hernia.

While different types of organisms may infect the naval as outlined heretofore two very serious though relatively uncommon infections may occur, namely erysipelas and tetanus. Erysipelas is not necessarily or always fatal as I have seen several cases recover, though a stormy time was had. I have seen, in consultation, only a few cases of tetanus all of which died. Neither of these diseases should have occurred, but in houses that are close to barns or in the old days when doctors rode and handled horses, a slip in the technique could occur with fatal consequences.

Gangrene is a very infrequent lesion of the umbilicus sometimes with a local slough and ultimate recovery although such a happy termination of the case is not very frequent. The moist tender skin of the new-born can easily be infected by cocci and an impetigo contagiosa be observed. This has happened in our best hospitals and its prevention is difficult. If the area involved is not very large, the baby can soon be cured, but if much skin is attacked, the prognosis is grave.

Exfoliative dermatitis, Ritter's disease, is a very alarming general dermatitis with large blebs, which rupture leaving large areas of denuded cuticle with the epidermis hanging in strings and flakes. Most such cases that I have seen have gotten well although they looked desperate. Ritter's disease is believed to be infectious in origin although the type of organism has not been isolated.

Intertrigo may be resistant to treatment but should not be dangerous to life.

General sepsis is responsible for a few of the deaths in the newborn. It is difficult at times to determine the lesion through which the organism has gained entrance into the body, and the portal may be at some unrecognizable point, and other than the usual locations which have been considered in this paper. Whatever the mode of entrance the symptoms of sepsis will be such as are usual in that condition. Irregular high fever with sweats and remissions, diarrhoea of the typical parenteral type, anorexia, vomiting and progressive jaundice, concentrated dark urine with much free uric acid, all tell the tale of the storm through which the baby will be unable to pass. Such cases are practically hopeless. They should emphasize the need of a perfect aseptic technique in handling the infant as well as its mother.

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Infections of the eye with the gonococcus are sufficiently guarded against by the Crede method but it should not be forgotten that other organisms may get into the conjunctiva during birth and after and that the vernix caseosa may cause irritation of the conjunctiva unless thoroughly removed, and that the new-born's eyes, should not be exposed to too direct rays of light either sun or electric.

The old custom of washing the mouth before and after nursing frequently caused a severe infection of the mouth known as Bednar's aphthae. It is rarely seen in these days.

Infection of the breasts may take place when the mamma are distended with milk. It is best not to attempt to express the milk from these swollen breasts as such expression may bruise the tender epithelial cells and predispose to a localized infection there. Soothing compresses are very helpful in such cases.

A word of caution should be given about the dangers of infection of the new-born from the family colds. Acute rhinitis and its extension to the bronchi constitutes a real danger to the new-born who have little strength to fight such infections.

It is believed by some that the fever occurring in the first few days usually called inanition or dehydration fever may be the reaction to bacteria which have gained access to the gastro intestinal tract after feeding.

Finally we cannot begin too early to guard against that most common and most prevalent of all organisms the tubercle bacillus. We may not recognize its ill effects until months afterwards, but the new born baby in a household with one or more contacts has very little chance to escape infection unless we educate our patients and keep the possibility of such infection constantly in their minds. Direct infection through the placenta has been observed. Such cases live only a few months and are beyond help.

## DISCUSSION

**W. W. Nicholson:** I have certainly enjoyed listening to this excellent symposium, and I especially wish to compliment Dr. Dean upon her splendid presentation of the subject of the resuscitation of the new-born. As she has pointed out, the key-note is gentleness and warmth. It is interesting to note that, of all those to whom she sent questionnaires, only one advocated spanking and only one recommended pulling of the tongue to remove the mucus.

I think Dr. Dean's method of removing the mucus is an excellent one and if it cannot be accomplished in that way, then use a catheter and suction, and keep the baby warm. Unless it is an anomaly, or there is intracranial hemorrhage, the child will probaby get along all right.

As to hemorrhagic disease of the newborn when this condition is diagnosed, it is a waste of time to give blood transfusion in any way except intravenously. If you do not want to give it through the fontanelle it is a very simple matter to make an incision over the ankle vein and give it that way.

As to intracranial hemorrhage, as Dr. Pritchett pointed out, hemorrhagic disease should be ruled out before making a spinal puncture. The presence or absence of hemorrhagic disease, if there is no external hemorrhage, can be determined by the clotting and coagulating time of the blood, and if it be unduly long, all precautions should be taken before doing a lumbar puncture.

Dr. Barbour in his paper did not discuss treatment, but this subject should not be allowed to pass without some mention of the necessity of observing every precaution to prevent infection of the upper respiratory tract. Neither a nurse nor a doctor, suffering from even a slight cold, should be permitted to enter a new-born nursery without wearing a mask.

**Henry M. Rubel:** This has been the best sixty-minute post-graduate symposium on the subject of obstetrics, and the complications which sometimes ensue, that I have heard in a long time.

The subject of resuscitation of the new-born is one that has come in for considerable discussion lately, and I am glad that Dr. Dean undertook to ascertain the views of various authorities and to find that here in Louisville we are not so far wrong after all. We have outgrown the old-time methods, such as spanking the baby, taking it up under the axillae and working it back and forth, or the old fashioned method of swinging the baby first over one shoulder and then over the other. Then there is that beautiful new term, "contrast bath," consisting of dipping the baby first into warm water and then, into cold water. This should by all means, be discarded. The whole thing is, first, to remove any obstruction, whether it is mucus, blood or what-not; and, second, sustained warmth, because the child has just been expelled from a nice, warm water-bath into the atmospheric temperature, usually of 72 to 85 degrees F., which is chilly in comparison, and the child must be kept warm. Cold water devitalizes the baby!

After the mucus has been removed and warmth applied, if the child does not come along all right, then apply some of the other methods of inducing respiration. There is a very compact little apparatus, costing about fifteen dollars, for administering 6 to 10 per cent carbon dioxide and 94 to 90 per cent oxygen. More elaborate and expensive outfits for this purpose are maintained at most of the hospitals. After being used for administering anesthesia to the mother, they can be switched to carbon dioxide and oxygen for the baby. This apparatus should be in the delivery room of every modern hospital and never removed.

Everyone has his own favorite method of resuscitation. Dr. Dean mentioned Dr. Greenhill of Chicago, who uses alpha lobelin. That may be all right, but we should not administer a full dose to a baby, but rather 1/2 of the infant ampoule of 1/20 gr., and do not give it subcutaneously but right into the umbilical vein. So far, I have seen nothing but brilliant results from its use. I have never encountered any secondary respiratory depression following the use of this drug.

Now, if the child is not breathing after this, we must resort to other methods. I like to immerse them in a warm bath and if that does not do any good, then employ mouth-to-mouth breathing. I have yet to see an instance of any disturbance, or injury to lung tissue by the amount of air one can force into the baby's lungs by ones own effort. Place a piece of sterile gauze between the child's mouth and yours and breathe six to ten times per minute. After you get the baby started breathing, do not cease the carbon dioxid and oxygen inhalations. This should be given three or four times a day for ten minute periods until the second or third day, because the lungs do not entirely unfold themselves until many hours after birth, and many deaths occurring during the neo-natal period are due to unexpanded areas in the child's lungs. I recently had a case at St. Joseph's Infirmary in which delivery was normal and easy, and on the same afternoon the child's respiration went to 60 per minute and it became cyanotic. I had Dr. Lee Palmer see the case with me. We used a 5 per cent carbon dioxide and a 95 per cent oxygen mixture keeping the baby in a tent for one hour at a time, and then taking it out. We kept this up for three days, at the end of which time an x-ray plate showed the lung structure to be entirely unfolded. By this means we prevented the advent of a progressive atelectasis and possibly a subsequent pneumonia during the neo-natal period.

**J. J. Glaboff:** I wish to reemphasize some of the points concerning resuscitation of the newborn that have been already brought out. First, we should clear the passages, nasal, throat, and larnyx of all mucus discharges; second, be gentle; and third, keep the child warm. I am not much in favor of drugs as a means of resuscitating the infant. Alpha-lobelin is not without its faults. The action of this drug is not long-lived and if given in an overdose, may produce respiratory depression, vomiting, and collapse.

The commonest cause of keeping up respiration after once started is intra-cranial injury, i. e., hemorrhage, edema and shock. In intracranial injury we are at a loss at times as to what to do. The usual thing is a spinal puncture to release pressure, but sometimes bleeding is increased as a result of this.

Regarding hemorrhagic diseases of the newborn, potential hemorrhagic disease may be recognized in the first days of life by prolonged clotting time. This reveals injury in the formation of blood clotting substances, prothrombin and fibrinogen. Their diminution is brought about by anesthetic drugs administered during labor, by postnatal hemolysis of red blood cells, as well as by prenatal deprivation of proteins and fats on the part of the mother.

Although the prolonged coagulation time is found in hemorrhages in different locations, it may be present without evidence of hemorrhage. The early spontaneous hemorrhage is quite distinct from hemophilia, among other respects in that the tendency to bleed does not persist if the child survives.

Nussbaum, in July 1932 issue of Amercian Journal Diseases of Children, reported two cases of massive intra-abdominal hemorrhage in the new-born, both cases occuring on the fourth day of life, one the result of subcapsular hemorrhage into the liver tissue which resulted from trauma, and the other, the result from intra-suprarenal hemorrhage not due to trauma. The best lesson to learn from the first case is to eliminate forceful methods of resuscitation. The time will come when every delivery room will be equipped with a Drinker apparatus. Hemorrhagic tendencies are greatest on the fourth day.

The suprarenal gland is relatively the most vascular organ of the body, receiving six times its weight of blood per minute. Its blood supply is derived from the superior, middle and inferior suprarenal arteries. These branches anastomose freely and form large venous capillaries that unite to form the central vein which leaves at the hilus. Symptoms of suprarenal hemorrhage are shock, listlessness, refusal to eat, rapid respiration and rapidly developing anemia amounting to exsanguination and convulsions.

In July 1932 issue of American Journal Diseases of Children, Gillespie reported causes of death in 338 cases as determined by autopsy. The deaths due to trauma of birth constituted 30 per cent of all the stillbirths. It may be noted that the frequency of trauma increased with age, and that the greatest incidence was at 10 months, or more. The most common injury at birth was laceration of the falx cerebri; the tentorium cerebelli or both, with or without hemorrhage (intracranial.)

Serbin, in American Journal Obstetrics and Gynecology (May 1928) of 320 fetal post mortems at the Chicago Lying In Hospital, has satisfactorily explained the preponderance of cerebral hemorrhage following forceps. With the application of blades, the longitudinal diameter of the skull is increased, and there is compensatory shortening of the transverse diameter with undue tension on the falx cerebri and on the tentorium cerebelli, thus producing a tear of the tentorium, the adjacent sinus and veins of Galin.

Chase, in Surg. Gynecology and Obstetrics (July 1930), noted in an anatomical study of subdural hemorrhage associated with tentorial splitting in the new-born that if birth occurs prematurely, tentorial splits are relatively more common than if birth occurs at full term. This, he has shown, is partly due to the immaturity of the fibers of the dural septum in cases of premature births. At this time the blood vessels are delicate and there is an abundance of lymph spaces.

Among the intracranial hematoma of the new-born, by far the most important is the subdural hematoma (dural and intermeningeal). The sources of the blood are different. In some cases, the hemorrhage is derived from the veins opening into the longitudinal sinus, which may be injured by overriding of bones of the skull. Rupture of veins is not the only cause. Tears in the tentorium and subdural hemorrhages occur also after easy spontaneous labor of short duration.

**Silas Starr:** I have enjoyed this symposium very much indeed. Very little can be added to what Dr. Dean has said on the subject of resuscitation of the new-born. I believe we are all agreed that gentleness and warmth are of major importance and will prove effective in practically one hundred per cent of cases, unless the child has an anomaly or there is intracranial hemorrhage, as pointed out by Dr. Nicholson.

Carbon dioxide is a very valuable adjunct after the baby begins to breathe, causing expansion of the lungs and preventing atelectasis which may result in the death of the baby later, as it does in some instances.

In connection with Dr. Palmer's paper, I would like to ask him whether, when blood transfusion is carried out in hemorrhagic disease, it is necessary to type the blood of the donor and if typing is not necessary, whether it makes any difference if the blood is taken from one parent or the other. The fact that hemorrhagic disease of the new-born may manifest itself at any time in the first twelve days should impress upon us that every baby is a potential subject of hemorrhagic disease which may not become manifest until there is some slight injury or trauma, such as a needle prick, for example. For that reason, it is wise to postpone such operations as tongue-clipping and circumcision until after the period during which there is a possibility of the development of hemorrhagic disease, which is twelve days. We see occasional reports of babies bleeding to death following circumcision and tongue-clipping. These are comparatively simple procedures and obstetricians are prone to carry them out almost immediately after birth, or within the first week, and we should bear in mind that this may at times be followed by disastrous results.

**A. B. Bizot:** I wish to speak to only one phase of this subject, namely pre-natal care and early diagnosis.

It is a very sad thing for a mother to complete the full term of pregnancy only to have her baby die within a few days after birth of hemorrhagica neonatorum. When transfusion of blood becomes necessary in these cases, usually the most available donor is the father and under these circumstances the child is getting some of the same strain of blood that it already has in its veins, whether it is of the same type or not. However, we have not had good results from transfusion, not that we have had so many cases, but ours have all ended in death. Postmortems in three cases revealed the blood in the peritoneal cavity just as it was injected, except it was clotted. There appeared to have been no absorption of the blood whatever. The point that has been brought out in this discussion, that the injection of blood is of no avail unless it is given intravenously, may be true; I have no experience with it.

One point that I wish to emphasize is the necessity of prenatal care for the prevention of hemorrhagic disease. It is too late to wait until the child has to be treated for this condition. It is true that in a primipara we cannot tell whether the child is going to have hemorrhagic disease until after it is born, but in subsequent pregnancies a great deal may be done. The mother should be required to report as soon as she knows she is pregnant, and it is my practice to prescribe 5 drops of Donovan's solution, which consists of 20 grains of arsenic and iodid of mercury, with from five to ten grains of iodid of soda. This is taken by the mother all through the pregnancy, regardless of the fact that both mother and father may show negative Wassermann reactions, and the result is invariably a perfectly healthy baby. I recall one woman who bore, first, a healthy child and then two with hemorrhagic disease and then, following this treatment, another healthy baby. During her next pregnancy the treatment was not given and again hemorrhagica neonatorum manifested itself. During her next pregnancy she again received the treatment and the result was another healthy baby.

The only safe plan is, after one case of hemorrhagica neonatorum, to put the mother on mercury, arsenic and iodides during each successive pregnancy, and you will find that you have been treating the babies long before they are born.

**Frank Pirkey:** Just a word about some of the eye infections of the new born, the most distressing cases of ophthalmia neonatorum that we see are, of course, those due to the gonococcus. As Dr. Barbour pointed out, this is well taken care of nowadays by prophylactic measures, using silver nitrate in the eyes, which will be effective in perhaps over ninety-nine per cent of cases. However, we do see this condition occasionally. For instance, in the eye clinic at the City Hospital, we see about one case of ophthalmia neonatorum every month, which is a remarkably small proportion when we consider the large number of the poorer class of people who are treated at this institution. There is usually no difficulty in differentiating between those cases due to the gonococcus and those due to other organisms. The gonorrheal cases develop within the first day or two after birth. So-called border line cases, however are sometimes difficult to differentiate without the aid of laboratory methods, and where there is any doubt smears and cultures should be made.

In gonorrheal cases the treatment is very important because a great deal of damage may be the result of a few hours neglect. Of the other organisms causing this condition, the pneumococcus is the most common and then the staphylococcus and mixed infections. Another type of case that we see occasionally is that in which no infecting organism can be demonstrated. Various authorities say that 3 to 10 per cent of cases belong to this type in which careful laboratory analysis fails to disclose any organisms that can be demonstrated. Most authorities seem to think that the majority of such cases are due to silver nitrate reaction and clear up with practically no treatment except keeping the eyes clean with a mild wash such as boric acid or saline.

**James W. Bruce:** Very little can be added to what has already been said on this subject in the paper and discussions except, perhaps, to comment on a few of the controversial points, as, for example, the use of carbondioxid, concerning which there appears to be a wide divergence of opinion. Eastman, of Johns Hopkins, reported doing blood chemical analyses in cases of cyanosis of the newborn and demonstrating the presence of marked acidosis, and from that he reasons that carbon dioxid simply accentuates the acidosis and is, therefore, contraindicated. That is why he uses pure oxygen. On the other hand, we have all heard Dr. McCormack of this city tell of the excellent results obtained in a number of cases from the use of carbon dioxid in combinations as high as thirty-five per cent. I think, however, that any one who undertakes the use of more than ten per cent of carbon dioxid should be an expert in its administration, because we know that its use in a too highly concentrated form may produce a toxic effect, and in the hands of an inexperienced person may result disastrously.

The use of alpha lobelin, pharmacologists tell us, is also dangerous in other than small doses. However, I have seen some rather spectacular results from its use, in one case apparently bringing back to life, in the course of six minutes, a child that had practically ceased to breathe.

Contrast baths have, I believe, been pretty generally discarded. The warm bath is nearly always used, but I do not believe many practitioners now employ the contrasting cold bath which, unless carefully used, may refrigerate the child beyond recovery.

It has been my observation that we do not see hemorrhagic disease of the newborn as frequently as we used to; perhaps better methods in the prenatal care of the mother may have something to do with this; I do not know. As to intramuscular and intraperitoneal injections of blood in hemorrhagic disease, it has been my experience that this is of no avail except, perhaps, in mild cases. On the other hand, I have never seen an intravenous transfusion of 40 to 60 c. c. of blood fail to stop the hemorrhage.

We formerly employed spinal puncture in birth injuries a great deal more frequently than we do now. We have all come to believe that a certain degree of intracranial pressure is a valuable aid in controlling hemorrhage, and that by making a spinal puncture and relieving the pressure we may do more harm than good. Therefore, unless the symptoms indicate a dangerous degree of pressure upon the respiratory center, spinal puncture is not positively indicated.

**Harry A. Davidson:** I would like to emphasize one or two points, especially along the lines of prophylaxis. What can be done to prevent some of these conditions which have been the subject of discussion tonight? For example, intracranial birth injuries. One thing the obstetrician can do is to lay more stress upon early examination and pelvimetric measurements to make sure the pelvis of the mother, especially if she be a primipara, is large enough to permit her to give birth to a normal child, and if it is not large enough to plan well in advance just what he is going to do at the time of delivery. If the pelvis is contracted and it is clear that a Cesarean section will be necessary, don't wait until the mother has been in labor for many hours and has become exhausted, and the child has been injured by pressure from labor pains; do a Cesarean section at the proper time and avoid all this. In addition to the use of the pelvimeter, x-rays are a valuable aid in determining the relationship between the size of the head and the pelvis of the mother.

To one who has been doing obstetrics for twenty-five or thirty years, most of the conditions and methods mentioned here tonight have become familiar. Twenty-five years ago we employed practically all of the methods of resuscitation mentioned by Dr. Rubel. Resuscitation now has become a comparatively simple matter. Clean out the mucus, wrap the child up warmly and put it aside, and in nearly every case, unless there is intracranial injury, the child will begin to breathe.

Prophylaxis looking to the prevention of infections in the new-born is another phase of the subject that should be emphasized. Covering the baby with a weak ointment of ammoniated mercury is preferable to a bath and will practically always prevent infections such as impetigo contagiosa. Another thing the doctor should remember is not to handle the baby. If he does not handle the baby he cannot be blamed for any ensuing infection. The use of prophylactic measures such as I have outlined will in itself tend to reduce the number of babies that have to be resuscitated. Whenever possible, delivery should take place in a hospital where prophylactic and aseptic measures are conveniently available. We should be just as aseptic in the delivery of a baby as in doing an abdominal operation. In hemorrhagic disease of the newborn we cannot, of course, do much along prophylactic lines, because that is a condition that is probably prenatal. However, it may be that in the future we will discover some method of treating the mother that will tend to prevent the development of hemorrhagic disease in the new-born.

There is no doubt that prophylaxis plays an important part in obstetrics and will accomplish a great deal in the way of preventing many of the conditions that have been discussed here tonight.

**Simrall Anderson:** I do not believe I have ever listened to a symposium that I have enjoyed more than this one, especially Dr. Dean's paper. It is all right to be as gentle as we can, to give the baby a warm bath, use carbon dioxid and so on, but I have seen cases that looked to me like they had to be treated a little more and putting them in ice-water starts breathing pretty quickly.

The use of high forceps is not as frequent as it used to be. My father, Dr. Turner Anderson, was the first in this city to advocate version in cases of high forceps delivery, and since that time Cesarean section and version has materially reduced the number of intracranial injuries.

As to the use of carbon dioxid, that is about the same thing as breathing into the child's mouth. Oxygen, of course, helps. I am not much of a believer in the use of pituitrin. I do not do any of that kind of work now, I have seen cases in which the use of pituitrin ended disastrously when it was first put on the market.

In obstetrics I do not believe there is any better anesthetic than chloroform. Whether that is the consensus of opinion I do not know, however I have never seen a fatality from its use.

I recently saw a booklet on volunteer nursing in Eastern Kentucky mountains, and I was some what surprised to find that their mortality rate will compare favorably with that of institutions, despite the fact that usually there is no skilled obstetrician in charge nor do they know how to use forceps. So after all, it seems that if you let most women alone they will get along pretty well, and that meddlesome mid-wifery is often a potent factor in the mortality rate.

**Winston Rutledge:** I do not think any discussion of the subject of infectious diseases of the new-born is complete that does not include syphilis, which Dr. Barbour failed to mention. He may have taken it for granted, because it is one of the most frequent of the infectious diseases of the new-born with which we have to deal.

In the prophylactic treatment of pregnant women, anti-syphilitic measures are just as important in the later stages of pregnancy as they are in the earlier stages, because in many instances the woman may contract syphilis during the later stages and transmit it to the child during its passage through the birth canal.

The baby may appear to be perfectly normal when born, and within two or three weeks develop a chancre, or it may have a chancre at birth and within two or three weeks develop secondary manifestations. Therefore, I believe that anti-syphilitic treatment of the mother during the last two or three months of pregnancy is just as important as at any other time.

**G. S. Buttorff:** I wish to emphasize a point made by both Dr. Nicholson and Dr. Bruce, that in the presence of a diagnosis of hemorrhagic disease of the new-born, blood transfusion should be intravenous rather than intramuscular or intraperitoneal. I recall a case in which the bleeding was from the naval, and I made repeated intramuscular injections of blood without result. I even did a pursestring suture of the naval without effect. Then we gave a blood transfusion intravenously and the bleeding stopped as if by magic.

Some one asked whether it is necessary to type the blood of the donor in making an intravenous transfusion. While I do not presume to answer for Dr. Palmer, I had intended to discuss this point. Theoretically, the blood should be typed unless the mother happens to be the donor. The blood cells are formed at birth but change rapidly, and if transfusion is carried out as long as eight or ten days after birth, certainly it would appear to be logical to type the blood.

There is one point upon which I would like to be enlightened. The use of cod-liver oil, particularly viosterol and the other forms high in Vitamin D, during the prenatal period has recently been advocated with the idea that it lessens the tendency to postpartum hemorrhage. I understand that in a small series of cases recently observed at Indianapolis, this has been found to be true, and I have been wondering whether it would also lessen the tendency to hemorrhage in the new-born.

Dr. Starr in his discussion pointed out that since hemorrhage in the new-born may occur at at any time from the first to the twelfth day, it would be advisable to postpone circumcision until after that time. I do not believe such a course is practicable because most of the mothers leave the hospital on the twelfth to the fourteenth day and, therefore, prefer to have the circumcision done on the seventh or eighth day, and certainly if the hemorrhage is going to occur it is better to have it while the mother is still in the hospital, especially since we have at our command what I have come to look upon as a specific remedy in the form of intravenous blood transfusion.

**W. T. McConnell:** We have all heard it said that "meddlesome midwifery" is the cause of birth injuries in a great many cases. It is possible that in former days many babies were killed or injured by the application of high forces, but it is also true that many babies are saved by the timely application, in skilled hands, of forceps to the head in the lower birth canal.

It is probable that more babies are asphyxiated by the indiscriminate and unintelligent use of pituitrin in the second stage of labor than by any other one thing. It is true that pituitrin will increase the uterine contractions, but usually it does not permit of complete relaxation of the uterus between contractions, thereby preventing the oxygenation of the baby during the second stage of labor when it is needed most, because the head is compressed and the baby has everything to fight against. Many injuries for which forceps are blamed are really due to the obstetrician trying to push the head through the canal by the use of a toxic agent which does not permit the uterus to relax sufficiently between contractions. Therefore, I am opposed to the indiscriminate use of pituitrin during the second stage of labor.

**Lee Palmer,** (in closing): Attention has been called to the fact that a number of cases have been reported of suprarenal hemorrhage in the new-born. As a matter of fact, hemorrhage may occur in any of the internal organs.

Dr. Starr's question as to typing the blood was answered by Dr. Buttorff. I would say that, wherever possible, the blood should be typed before giving an intravenous transfusion. If typing facilities are not available I would use the blood of either the mother or the father during the first month of the child's life. We have seen cases where there was incompatability between both the mother's and the father's blood during the first month, but this is rare.

I agree with Dr. Starr that as little operative work as possible should be done during the first ten or twelve days after birth. We know that hemorrhagic disease of the new-born manifests itself most frequently on the second, third or fourth days and that it seldom occurs after the seventh day and never after the twelfth day. Therefore, circumcision should be postponed until at least a week after birth and it would be wise to determine the baby's clotting time before doing it.

Where a newborn infant has lost considerable blood from hemorrhage it is best, of course, to give blood transfusion intravenously rather than intramuscularly or intraperitoneally, but where the patient is in the country, or where for any reason an intravenous blood transfusion is impracticable, I would certainly give it intramuscularly. Many authorities, including Moss and Holt, state that intramuscular blood transfusion will frequently stop the hemorrhage.

I have had no experience with the use of mercury and iodides during pregnancy as a method of preventing hemorrhagic disease of the newborn. We know that this is not a family or hereditary disease, although it may occur in two or more children of the same mother. Where one or both of the parents show a positive Wassermann reaction, we are dealing with syphilis and not with hemorrhagic disease of the new-born.

**J. H. Pritchett,** (in closing): I read an article a few weeks ago by a man in Pittsburgh, whose name I do not recall, in which he expressed the view that the administration to the mother of cod-liver oil and calcium tended to promote greater security against infections and hemorrhage in the new-born. How it works I do not know.

As has been brought out in the discussion, probably the safest time for circumcision or any other minor operation, is about the eighth day after birth, and if we are at all uncertain as to whether the child may bleed, a coagulation test should be made and if unfavorable the operation should be postponed.

Some eight years ago I read a paper before the Kentucky State Medical Association on the subject of intracranial hemorrhage in the new-born, and many members, including Dr. Bruce, Dr. Barbour, Dr. Flexner and Dr. Sherrill and Dr. Speidel agreed with me at that time that lumbar puncture was indicated and should be done repeatedly. It is interesting to note how views have changed in this comparatively short period.

**Philip F. Barbour** (in closing): I have very much enjoyed the papers and also the full and frank discussion, which has brought out and emphasized a number of points. One is, the causation of hemorrhagic disease of the new-born. It is not a result of calcium deficiency or thrombin deficiency, but rather to a deficit in the prothrombin content of the blood, and I do not believe that any one knows how to increase or decrease the amount of prothrombin in the system. Perhaps the physiologists may some day be able to tell us its source and how to produce a greater amount in the mother. We would naturally assume that if the mother's blood can be enriched, as it were, the blood of the child would have sufficient prothrombin content to produce normal coagulation. It has been my observation that protracted and severe labor, with the head that is disproportionate to the size of the canal through which it must pass, tends to increase the danger of intracrainial hemorrhage, but it must be remembered that intracranial hemorrhage has been demonstrated to have occurred in the brains of children delivered by Cesarean section. It is evident, therefore, that we still have a great deal to learn concerning the cause of intracranial hemorrhage. Personally, I believe that where there is evidence of intracranial hemorrhage, with the fontanelle bulging and the child profoundly cyanosed, lumbar puncture to relieve the pressure is certainly indicated. I do not see the necessity of repeatedly emptying the lumbar space, but one or two lumbar punctures, at the same time giving the child something to promote coagulation of the blood, will tend to minimize the amount of damage to the brain.

Some years ago Dr. C. G. Grulee read a paper before the American Medical Association in which he advanced the idea that lumbar puncture should not be done in these cases under any circumstances; that the hemorrhage will be absorbed and the child will become normal afterwards. Personally, I think he is wrong. We see too many children who are mentally defective following brain injuries at birth, and I believe that where we have intracranial hemorrhage with large quantities of blood over the surface of the brain, it should be removed until the fontanelle becomes depressed and the child's breathing becomes normal, and then you can let it alone after that.

I did not class syphilis among the infections of the new-born, but premised my paper upon streptococcic and other infections of that type.

I am glad to hear Dr. Nicholson call attention to the fact that it is very easy for a new-born child to contract infections of the upper respiratory tract from a doctor or a nurse with a severe cold. We cannot be too careful in guarding against this especially during the winter months.

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**Clinical Study of Cardiac Asthma.**—McGinn and White followed up a series of 250 cases of cardiac asthma to the deaths of 230 of the patients, and revived a similer supplementary group of 22 cases. Patients presenting this symptom of organic heart disease are most frequently men over 50 years of age with hypertensive or coronary heart disease. Although exceptions are not uncommon, the average expectancy of life was found to be little more than two years, one out of four patients dying within six months. The better the treatment, the longer the life. Rarely a patient may become free from attacks.

# RECTAL DISEASES IN GENERAL PRACTICE*

RUFUS C. ALLEY, M. D.

Lexington Clinic, Lexington.

Because of their frequency it is highly desirable that the private practitioner be familiar with the diagnosis and treatment of the more common proctologic disorders. The time has passed when rectal troubles must be spoken of in cautious whispers, and ointments or suppositories prescribed for the symptoms. It is a great fallacy, and often a deadly one, to prescribe proctologic treatment without first making an adequate examination.

It has been said that relatively few individuals pass the meridian of life without having some rectal disorder. Influences of evolution and civilization are undoubtedly the underlying factors.

Hemorrhoidal disease and anorectal infections constitute a large majority of rectal disorders and this discussion will be limited to these conditions.

An understanding of symptomatology is necessary in order that rectal complaints may be properly interpreted. The anorectal line forms the anatomic and physiologic division between the rectum above and the anus below. The sense of pain is almost absent in the rectum, while the anus is abundantly supplied with sensory nerves and is exquisitely sensitive to pain. This explains why organic disease of the rectum results in functional disturbances while pain predominates in anal lesions.

## HEMORRHOIDS

Hemorrhoids may be internal, external, or mixed (intero-external). External hemorrhoids, as most frequently seen, are of the acute thrombotic variety and accompanied by more or less pain because of pressure beneath the sensitive anal skin. Excision under local anesthesia is the treatment of choice. External hemorrhoids should never be injected with sclerosing solutions. Internal hemorrhoids are boggy masses of relaxed, sacculated superior hemorrhoidal veins located in the lower ampullar region of the rectum. The classical arrangement is two on the right and one on the left. Simple, uncomplicated internal hemorrhoids are never painful. The most common symptoms are bleeding after stool, protrusion and a sense of fulness in the rectal region. When pain is present it is due to complicating factors.

The diagnosis of internal hemorrhoids is always made by visualizing them, either when prolapsed or through the proctoscope. They cannot be palpated on digital examination because they collapse under the finger. It is folly to assume that bleeding from the rectum is due to hemorrhoids when an unsuspected cancer may be the source of trouble. For this reason a careful and complete examination in every case of rectal bleeding is obligatory.

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*Read before Bourbon County Medical Society, March 23rd, 1932.

The treatment of internal hemorrhoids has been greatly improved during the past decade. In uncomplicated cases operation is no longer necessary. The non-cutting or injection treatment has been put upon a sound scientific basis and in properly selected cases uniformly good results are obtained. When complicating anorectal disease exists surgical removal, usually under sacral block anesthesia, should be advised. This is a hospital procedure and usually confines patient to bed for three to five days.

### ANORECTAL INFECTIONS

The great majority of anorectal infections are pyogenic; staphylococcus, streptococcus, and colon bacillus being the most frequent offenders. The frequency of tuberculous infection about the rectum has been greatly overestimated. Probably less than 5 per cent of abscesses and fistulae are tuberculous.

It is now generally recognized that the perianal abscess is but a stage in fistula formation. The usual sequence of events is as follows:

1. Infection in a crypt of Morgagni (cryptitis).
2. Burrowing of infection through perianal structures along line of least resistance.
3. Suppuration and abscess formation.
4. Spontaneous (or surgical) external drainage forming complete fistula.

The crypts of Morgagni serve admirably as catch basins for innumerable intralumenary microorganisms. When unusually virulent germs are passing through the intestinal tract, as in acute upper respiratory infection, these crypts are especially apt to become infected.

The burrowing that follows is often between the internal and external sphincters, this usually being the line of least resistance. This reaches the ischiorectal space frequently; more rarely the supralevator or retrorectal spaces are involved.

Diagnosis is more difficult during the earlier stages of cryptitis and perianal cellulitis. During this stage the patient may experience vague discomfort or even acute pain. The infected crypt can often be demonstrated through the anoscope and it is frequently more sensitive to pressure than the remainder of the anorectal circumference.

When the infection has progressed to the stage of abscess formation the diagnosis is usually obvious. In addition to pain and swelling there are often constitutional disturbances such as fever, accelerated pulse rate and leukocytosis.

Spontaneous or surgical drainage of the abscess usually affords prompt relief; however, if the internal opening is not cared for properly, fistula formation may be expected. The presence of fistula is characterized by more or less soreness and annoying purulent drainage. Pain is not a feature as long as drainage is adequate, but if the draining tract becomes occluded and pus is retained under pressure, pain again becomes prominent.

Another form of distressing anal infection is the irritable ulcer, often called "chronic fissure." This lesion is not a true fissure but is a chronic ulcer, usually posteriorly, that produces an astonishing amount of pain. This pain is usually at its worst during and immediately following defecation. The nature of the lesion may be suspected from the symptoms and verified by examination.

### GENERAL PRINCIPLES OF TREATMENT

In the treatment of anorectal infections the objective is three fold:

1. Adequate drainage of tissues involved.
2. Elimination of internal opening to avoid recurrence.
3. Construction of wound that will heal kindly and permanently.

The first of these requirements is easily obtained; however, the second and third demand more painstaking care and skill.

In the operative treatment of anorectal infections the general tendency is to be too conservative. Judicious wide excision of diseased non-essential tissue with the formation of shallow "soup plate" wounds produces far better end results than inadequate drainage through "button hole" incisions. It is indeed remarkable how rapidly extensive but properly constructed wounds heal. Usually it is desirable to leave anorectal wounds open and allow them to heal by granulation. Primary suture should be practiced only in selected cases and then with the expectation of wound infection and delayed healing.

In many operations for fistula it is necessary to divide the external sphincter; more rarely division of the internal sphincter may be required. The production of rectal incontinence need not be feared if due regard is shown the sphincters and surrounding structures. Generally speaking the sphincter may be divided posteriorly with impunity. Anterior division should be done advisedly because of the tendency of the transverse perineal muscles to pull the wound edges apart; this is especially dangerous in the female when there is any interference with the integrity of the perineal body. Ordinarily the sphincter may be divided laterally with safety provided the incision be made transverse to the fibers and provided further that the adjacent perisphincteric tissues are intact and amply support the divided muscle.

While the operation itself is important the post-operative treatment is no less so. The surgeon who is unwilling to give his patients the meticulous personal post-operative care they require should not attempt to do rectal surgery because his results will be disappointing both to him and to the patient.

Cleanliness should be emphasized. It is well known that strict asepsis is impossible in the anorectal region, yet a high degree of cleanliness is possible and desirable. Generally speaking the cleaner an anorectal wound is kept the more rapidly and satisfactorily it will heal. Non-irritating antiseptic solutions should be used freely. Hot sitz baths are valuable for their mechanical cleansing effect and for their comforting favorable influence on inflammatory processes. The wound must be made to heal from the bottom and any bridging immediately broken up.

If these suggested methods, or improved ones, be followed with great attention to detail, results that are pleasing to the patient and gratifying to the physician may be expected.

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**Unilateral Exophthalmos in Intracranial Tumors.**—Elsberg and his associates found in a series of 807 intracranial tumors marked unilateral exophthalmos in fifteen patients. Most of the tumors were meningeal fibroblastomas, but exophthalmos occurred also in a case of primary carcinoma of a sweat gland of the scalp, in an epidermoid in the middle cranial fossa, in two cases of orbito-ethmoidal osteoma and in a case of Paget's disease with intracranial complications. Unilateral exophthalmos may also occur in metastatic carcinoma and in venous and arteriovenous angiomas. The protrusion of one eyeball was often, for a number of years, the only symptom. The exophthalmos was most frequently on the left side in females and on the right side in males. In many of the patients there was also a cranial hyperostosis, visible when on the vertex and demonstrable by roentgen rays when on the base. The protrusion of the eyeball was most often due to perforation of the tumor into the orbit, thickening of the orbital walls, extension of the growth through an enlarged superior orbital fissure, or increase of pressure in the middle cranial fossa directly transmitted to the orbital contents through the superior orbital fissure. There was no positive evidence in any case that the unilateral exophthalmos was the result of compression of the cavernous sinus or the ophthalmic veins and venous stasis.

# GALLSTONES SIMULATING APPENDICITIS. REPORT OF CASE*

L. Wallace Frank, M. D.

Louisville.

Patient, female, age 55, was seen on January 8th, 1932, with a history that, three days previously, she had begun to have generalized pain in the abdomen, accompanied by nausea and vomiting. On the previous day the pain had become localized in the right lower abdomen and the nausea and vomiting had lessened. No history of previous attacks. There had been considerable diarrhoea before the pain started, but none since. No blood or mucus in the stools. She had lost forty pounds in weight in the last two and one-half years but had gained somewhat recently. No other symptoms. Of her past history the only important feature was that she had passed the menopause at 48, following which she had a diabetes for about three years.

Examination showed an elderly woman, apparently about 60 years old; heart in fair condition; lungs negative. Examination of the abdomen showed relaxed walls and, in the right iliac fossa, a mass about the size of a man's fist, which was very tender over which the muscles were slightly rigid; otherwise examination negative.

With a tentative diagnosis of appendicitis, patient was treated expectantly for two or three days, during which time the blood sugar was reduced to normal. She was then operated through a three inch incision at the outer border of the lower right rectus muscle. Immediately there was an escape of mucus and thick pus which had no odor. The cecum was exposed and a grayish exudate was present over it; no normal looking bowels were seen. The wound was drained with a rubber tube and two gauze wicks, packing off the abdomen.

The drains were removed at the end of the sixth day and the tube was removed on the eighth day. The patient went along nicely for two weeks and then began to drain bile through the incision. Then we realized what had happened; namely, that she had had a rupture of the gallbladder with a collection of the content of the gallbladder in the right iliac fossa. She was re-operated on February 23rd, approximately six weeks after the first operation, through an upper right rectus incision. There were adhesions about the gallbladder and a fistulous tract extending from the fundus of the gallbladder down to the site of the previous incision. This was clamped off and the stump cauterized. There were many adhesions around the duct portion of the gall bladder between the duodenum and the common duct. The cystic duct was full of stones and was removed. Upon palpation of the common duct, the presence of stones was determined, and 17 medium sized stones were removed. No other stones found. The wound was closed with a cigarette drain and the patient eventually made a very nice recovery.

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*Read before the Louisville Medico-Chirurgical Society,

The principal reason for bringing this case before you tonight is the fact that, with a rather typical history of an appendicitis and with a definite mass in the right iliac fossa, plus a leucocytosis, the true condition was not recognized until the patient began to drain bile through the incision.

## DISCUSSION

**J. Garland Sherrill:** Cases of this kind are not infrequent, where with symptoms referable to the appendix the gallbladder proves to be the true seat of the trouble, and vice versa. I presume, in Dr. Frank's case, that the amount of damage which had been done prior to the first operation was so great that it prevented the operator from thoroughly examining the upper part of the abdomen. Dr. Frank handled the case very well indeed, giving the patient a chance to get well after the first operation and getting her into condition for later operation.

The late Dr. Vance once reported to this society a number of cases in which he found gallbladder containing stones in the pelvis, and I recall that upon one occasion, while gathering material for a book, I found in the cadaver an appendix lying directly under the gallbladder. We know, therefore, that such instances do occur and sometimes make it impossible to accurately differentiate between an appendicitis and an acutely inflamed gallbladder.

**Louis Frank:** This case illustrates the difficulties we sometimes encounter in making diagnosis. Furthermore, many men are prone, immediately upon the presentation of symptoms referable to the right iliac fossa, to make a diagnosis of appendicitis; in fact, it may even be said that very few cases of appendicitis fail of diagnosis prior to operation. Such cases as this serve to impress upon us the necessity of getting the patient's full history and making a very careful physical examination rather than to depend upon first impressions in making a diagnosis. I recall having reported to this society a case of perforated gallbladder in which though the diagnosis had been made, there was great difficulty in locating the perforation. Incidentally, there were no stones in the gallbladder. I believe, with the exercise of care and thoroughness in taking the histories of these patients, putting our impulses and prejudices in the background, we will more frequently recognize the condition with which we have to deal prior to operation, and to know just what to expect when we do operate. More than one case of duodenal perforation has been sent to me with a diagnosis of appendicitis, and I am certain that many patients have been operated upon for appendicitis when they really had some other condition—and perhaps still have it.

**L. Wallace Frank,** (in closing): Gallstones was not even considered in this case. The differential diagnosis, to our minds, lay between appendicitis and, what is more common at this patient's age, a carcinoma of the cecum which had perforated. Upon opening the abdomen and seeing this mucus, which I had never before observed in an appendicial case, I thought it was queer, and looking back over the case now, I realize that it was characteristic of what we get when we aspirate the gallbladder; first comes mucus and later pus. The grayish exudate over the bowels presented an appearance not unlike that seen in malignancy.

After the patient had recovered from the first operation she was given a bismuth enema and an x-ray picture made, which revealed a perfectly normal cecum, thus excluding carcinoma. This was also confirmed by the fact that no fecal matter came away through the drainage tube.

# ECZEMA*

ROBERT L. KELLY, M. D.
Louisville.

Medical doctrine of not many years ago regarding eczema centered around two basic ideas, which had almost the weight of axioms; the first, that eczema was a disease entity; the second, that it was an enigma. The more recent medical teaching has been getting rid of both these ideas, and has, so far, come out with the problem simplified by just one half. That is, it has only one fundamental teaching regarding eczema: Eczema is a reaction of intolerance.

Now, when we say that a man is of an intolerant disposition, we do not mean merely that he has not the patience of Job with opinions that differ from his, we mean that he has not the patience of the ordinary man. And when we say that the skin of the eczema patient is intolerant, we mean that his skin will bear only with protest what ordinary skin will take with a smile, or, at least as "all in the day's work." This recognition of intolerance as the characteristic of eczema brings us at once to a further recognition, that of the dual etiology for the outbreak of eczematous lesions. There must be something that reduces normal skin tolerance and there must be some immediate cause for this special exhibition of the intolerant nature of the skin. We do not get eczema without the interaction of these two factors. From the standpoint of etiology it would seem beside the point to attempt to ascribe greater importance to one or to the other of these two factors since we have admitted that both are indispensable for the attack. From the standpoint of therapy and of prevention we would seem justified in practice in regarding that factor as the more important that could be removed most promptly or avoided with least inconvenience.

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*Read before the Kentucky State Medical Association at Louisville, October 3-6, 1932.

A modern French master of dermatology, Darier, brings out the difference between intolerance and poisoning thus: In poisoning the injurious dose is the same for all persons, the lesion is specific and the evolution progressive; in intolerance the causal substance may not be injurious in itself, the dose is individual, the reaction identical for diverse causes, and the evolution is by crisis. Eczema is not a lesion caused by an injurious agent, but a reaction to a great variety of agents, certain of which prove injurious to the patient while they are inoffensive to others. The pathologic process in the skin is typical, whatever the offending agent; it takes place in the epidermis, and especially in the mucous layer. The resulting visible lesions are protean, but they depend on the stage of the process, on the age of the skin, on its anatomic characteristics in different locations, and on influences to which it is exposed during the course of the inflammation; they do not depend on the nature of the agent that has started the process.

Here it is that the enigmatic nature of eczema is seen; the etiologic diagnosis, on which depends any relief that is to be lasting, cannot be made from a painstaking study of the lesion, but leads one afar, into the deepest secrets of the human organism, on the one hand, and into the outside world, following the steps of the patient hour by hour, throughout the day, on the other hand.

The subject of individual intolerance, congenital idiosyncracy or acquired sensitization, is a fascinating one for investigation or for speculation, but can be touched on but very lightly here. The threshold of tolerance is not necessarily fixed at a certain level for the individual. There is every reason to believe that it varies with factors that we do not understand, so that at one time a person's skin is tolerant and at another time intolerant toward the same irritant. The balance may swing easily, so that little is required to alter it in the way desired, or it may be weighted so heavily or bound down so firmly by accumulated secondary factors that nothing can ever cause it to swing in a different direction. It is through a raising of the threshold of tolerance that one may explain the "outgrowing" of infantile eczema and, doubtless, many cures by internal treatment. There can be no doubt that empirical methods or treatment based on far-fetched notions of etiology have from time to time hit upon the correct means of raising the threshold of tolerance in a particular case. It may further be supposed that the predisposing causes of eczema, like the precipitating causes, are many, not one. We know that a great variety of forms of treatment applied to the internal organism or to single organs, and ranging from simple reduction in dietary habits and building up of the general nutrition to surgical drainage of the gallbladder and nephrectomy have resulted in some cases in the prompt and permanent cure of subborn eczema of years' standing. It is impossible to deny the connection between treatment and cure in some of these cases. Yet, in general,dietary treatment has proved disappointing and no one would venture to advocate major operations on the abdominal viscera as routine treatment for eczema. There would appear to be no reason why irritating substances elaborated in the body through infection or through imperfect functioning of any one of the metabolic, endocrine or excreting organs might not reach the epidermis by way of the blood and the tissue fluid or by being poured out upon the skin surface in the sweat, the nasal secretions, or the saliva. In this way, disturbed internal economy could act either to reduce the tolerance of the skin or to provide the particular irritant needed to make the state of weakened tolerance manifest, or even to furnish both predisposing and precipitating factors in the same case.

The body chemism; especially the acid-base balance and the calcium metabolism, seems to offer a promising field in the study of the internal factors of eczema. The water balance in the tissues is another angle from which the intolerance of the eczematous skin is being investigated. Limitation of carbohydrate intake is one of the old established dietetic means of combating eczema, and Mebane has pointed out that a high carbohydrate intake has a tendency to fix water in the tissues. Intolerance is frequently so strictly localized as to suggest a local rather than a general factor acting on the skin. Vascular injury and local tissue change, the one to induce hyperemia and allow transudation, the other to fix the accumulated fluid preventing its resorption and elimination, are thought by Perutz to be important factors in the development of eczema. A salt-free diet tends to mobilize the water in the tissues, and favorable reports on the use of the salt-free diet in eczema are being made.

The strictly modern method of attacking intolerance is by specific desensitization.

But for this, the substance that precipitates the attack must first be known, and once this is known, it is often a much simpler matter to avoid it for the future than to complete a course of desensitization.

There are today two schools of thought regarding eczema. For the older school, the constitutional background outweighs in etiologic importance the exciting cause. This school regards eczema as an internal disease, which is characterized clinically by cutaneous manifestations which may or may not have an external exciting cause, but is characterized etiologically in all cases by an internal (and still enigmatic) disorder. Herein, they say, lies its distinction from dermatitis, which always has an external exciting cause and in which the predisposing factor is relatively unimportant. The younger school of thought, on the other hand, concentrates on the precipitating cause and holds that an external factor will be found, if the search is sufficiently patient, in the vast majority of cases of eczema, just as in dermatitis. And since clinically and pathologically the two conditions are indistinguishable in corresponding phases, it sees no object in attempting any distinction between them. Such is the point of view of Pusey and of Highman, to mention only two well known names.

In this apparent disagreement, which, as Stokes remarks, is more a matter of relative emphasis than of fact, the younger school has the advantage of handling tangible facts rather than speculations and in dealing with demonstrations rather than hypotheses. The external agents which have been shown capable of provoking eczema are already almost past numbering and must increase if the complexity of our civilization increases and brings a greater and ever greater variety of substances into our industries and our homes. Bloch has estimated that intolerant, i. e., potentially eczematous, skins outnumber "normal" skins as seven to one, so that, if the great majority of us have not yet suffered from eczema, it is only because we have not yet encountered the particular substance to which our skin is intolerant.

These eczema precipitants of external origin include ingested foods, especially proteins; allergy-inducing epidermal products such as feathers, hair and silk; the pollen, leaves, blossoms, fruits roots and juices of plants, and chemicals. House dust, such a prolific cause of asthma, does not seem to excite eczema; the dust of machinery is more likely to do so. Whereas in urticaria the most frequent offending substances are the proteins; in asthma, the epidermals; and in hayfever, the pollens, it is the chemicals that seem to play the roles of preponderant importance in eczema. This fact makes readily understood the increasing frequency of eczema in the present manufacturing age, when in the home as well as in the factory one is constantly using products into the composition of which a great variety of chemical substances, of whose nature the user has no knowledge, have entered.

The search for the agent to blame in a given case should first be narrowed down as much as possible by the history, by a consideration of the circumstances under which the attack has occurred, and in the light of the location of the eruption. Eczema on the hands and forearms directs attention to the occupations or outdoor hobbies of the patient; eczema limited to the face suggests an inquiry as to any recent changes in the toilet and cosmetic preparations used; eczema on the neck suggests dyed fur as the source of trouble, and with eczema on the trunk and legs one will do well to think of clothing, including dyed stockings. Stokes has recently presented a detailed study of the distribution trend of the lesions in different types of eczema and of those skin diseases of pyogenic and mycotic origin that used to be included under the term eczema. He states that the sites of major involvement in the "diathetic" or "asthma-eczema" complex are the forehead, the skin about the eyelids, mouth and chin, the creases of the neck, the suprascapular region, and the flexures of the elbows, wrists and popliteal spaces and adds that of these the flexural involvement is the most distinctive. Eczematous lesions on the feet, especially between the toes call for a differentiation from ringworm, which is only possible by culture of the fungus. Many cases of fungous infection have been treated unsuccessfully for years under the mistaken diagnosis of eczema and have responded promptly when finally given fungicidal treatment. Here the curious fact may be mentioned that fungous infection of the feet not infrequently gives rise to a similar eruption on the hands, sometimes on the face and other parts of the body, in which, however, the fungus is not found. It might be considered that the fungus both sensitizes the skin at a distance and provides the precipitating agent, sending it through the blood stream, thus being responsible for a true eczema. In eczema of the hands, the feet should be examined, and if eczematous appearing lesions are found there, it should be determined whether these are due to a fungus. Such fungous growths act as true focal infections, and if they are responsible for eczema on the hands, or elsewhere on the body, this will not clear up until the foci on the feet are cured. Foci of pyogenic infection, as in the teeth and tonsils, appear to be capable of acting in a similar manner to produce a true eczema in which pyogenic organisms are not present.

To return to the search for the external precipitant, if the attack is a first one, one will inquire especially as to any recent change in the occupations, hobbies or habits of the patient. Has there been any change made at his place of work, has any new ingredient been introduced into the materials with which he works? In the case of a woman who does her own house work, the same line of inquiry is in order. Has a pet animal or parrot been introduced into the home? or a lacquered object of any sort? Has the eczema followed a newly awakened interest in the garden? If the eczema is recurrent, one is helped a little. What circumstances have likewise recurred? What contacts have been repeated? Though cold and heat and especially the sun, have their effects on eczema, seasonal recurrences are not always matters of weather; certain contacts also occur by seasons.

The sensitiveness of the skin to emotional moods is a well established fact, and it is entirely comprehensible that such could lower the threshold of tolerance of the skin or even be responsible for the production of irritants within the body which would afterward reach the skin in the form of abnormal secretions or excretions. Numerous cases are on record in which eczema has seemed to be the direct response to emotional disturbance. Nevertheless, it is so very much simpler to alter some detail of the physical environment than to transform a psychic state that it would be well to spy around, at least in imagination, in the workshop and kitchen and bathroom of a patient, with an eye open for possible contact causes, before instituting a prolonged course of psychotherapeutic "reeducation." It was thus in an instructive case recently reported in the literature, in which a woman who suffered from eczema before marriage, lost it entirely when marriage transferred her to a sphere of ease and freedom from material cares, and had it return years later, after the death of her husband. What more tempting than to assume that the return of the eczema was due to grief and worry? But this woman had done her own housework before marriage and did it again after she became a widow; in the interval, when she was free from eczema, she had servants. The cause of her eczema was discovered in scouring powder. When she eliminated the scouring powder from her kitchen, her eczema disappeared, in spite of the fact that her widowhood and her reduced financial circumstances remained the same. This story is repeated as an instance of what a little practical analysis, as opposed to psychoanalysis, will sometimes do in unraveling the mysteries of recurrent eczema.

Once suspicions are centered on some particular substance, the therapeutic test of eliminating the substance may be tried, or the patch test may be used to bring greater certainty in to the situation. The patch test, over the intact skin, is more reliable in eczema than methods in which the skin is first abraded or a solution of the substance is injected. It reproduces more exactly the conditions of the original irritation, and theoretically it is more suitable for the reason that eczema is an inflammation of the epidermis. In the patch test a fragment, or, if a fluid, a few drops, of the substance to be tested is applied to the intact skin, covered with muslin, then with some impermeable substance, and the whole bound down with adhesive plaster. The result is read off from the skin on the following day or later. A positive reaction generally shows the same characteristics as the patient's eczema. This test is extremely simple to describe, but does, nevertheless, conceal in its simplicity numerous sources of error. The technic must be exact and painstaking. All starch, soap, bleach and blueing must be thoroughly boiled out of the muslin, and the covering material must itself not be irritating. A pulverized substance, such as wheat flour, face powder, soap powders, or cement, should be tested both dry and moistened. The influence of sweat in causing a substance to become irritating must be remembered. In all ways, one should attempt to reproduce in the test the conditions under which the eczema arose. If, as is sometimes the case, the intolerance of the skin is limited to certain areas, a test made on another area would be useless. But the test must not be made on skin still presenting eczematous changes, for such skin is irritated by all sorts of substances beside the one responsible for the eczema.

Although the method of test after test with various substances may seem, and is tedious, the results of eliminating the offending substance from the environment when it is discovered are so brilliant that it is well worth the effort in a disease that takes such a heavy toll of happiness and working efficiency and in which nonspecific treatment of chronic cases, while contact with the irritant is maintained, is so dishearteningly ineffective. There will be found, it is true, a certain number of patients whose skin is intolerant to such a wide variety of substances that the test offers little practical help. Such are, as a rule, the patients with the asthma-eczema combination, who are likely to have a family history of eczema, asthma, hayfever, with nervous instability.

Eczema in infants occupies a peculiar position, owing among other things, to the extreme delicacy of the baby's skin, on the one hand, and to the lability of the entire infant organism, on the other. A third factor to be considered is the comparative limitation of the environmental contacts of a baby as compared with those of an adult. In view of the lability, it would seem that internal treatment would have a better chance of success in raising the threshold of skin tolerance to normal and fixing it there than in the case of adults, and that therefore eczema in infants should in all cases receive the most painstaking general treatment, aimed at removing all infections and all metabolic deviations from the optimal, and especially all deficiencies in the functioning of the gastrointestinal tract. In a large number of cases of infantile eczema the precipitating agents are the proteins of milk (breast milk or cow's milk), wheat or eggs. Much more rarely have dusting powders and other external contacts (including woolen and silk clothing) been incriminated. Mebane believes that highly concentrated sweat is frequently the cause of eczema in very early life and blames neglect to give the baby sufficient water. In eczema around the mouth in a baby, one should think of an irritating saliva, of regurgitation of acid stomachs contents, and of nasal secretion made irritating by metabolic disorder or infection.

In considering local therapy in any skin disorder, one must duly evaluate the peculiar position of the skin among all the organs of the body, in that it is constantly exposed to the external world. Secondary infection is likely to be present and a certain amount of added irritation from external influences is unavoidable. It is impossible to put the skin completely at rest. And yet, in the acute stage, rest is imperatively indicated, the same as is rest of the part in any other acute inflammation. Furthermore, the eczematously changed skin has lost its normal powers of protecting itself. Local measures to protect the skin are therefore urgently required. Local treatment remains very much what it has been for years past. With the exception of radiotherapy, nothing basically new has been added for many years. The principles are: soothing applications in acute stages, stimulating applications in chronic cases; cleansing with creams and oils instead of water, and avoidance of soap. Sulzberger and Morse have reported cases of hypersensitiveness to the wool fat base of ointments and it would be well to remember this possibility when confronting with eczemas that seem to grow worse under treatment with ointments. Philippson thinks it a mistake to avoid soap and water, provided all the alkali is thoroughly removed by rinsing and an acid is applied after the drying. He argues that the soap removes the sources of itching and that in the dry forms of eczema the infiltrates are softened and made more readily absorbable by the action of the alkali. Itching can almost invariably be relieved by the application of x-rays.

In the words of Andrews, "There is no disease in which more remarkable results have been accomplished by x-rays." In nearly all cases x-ray therapy will cause involution of the lesions, and the results are often permanent. A single exposure of a few seconds has, in his experience, cured eczemas of ten or more years' duration. In the greater number of cases, the results are temporary, lasting for a period of weeks or months. The best success is obtained in subacute and chronic cases; there is no other local method that acts on chronic eczema with such certainty and speed. Good results may be anticipated with a high degree of certainty in the papular and vesicular stages. In the pustular stage the effect is often spectacular, but resistant cases are also seen. Crusted and thickened eczemas that have proved recalcitrant to every form of local treatment almost invariably undergo involution under the influence of x-rays. Eczema on the nipples usually of a very stubborn behavior toward local medication because secondary to chemical changes in Montgomery's glands or the lacteal glands, responds well to soft x-rays. When applying x-rays and local medicinal stimulants at the same time, one must bear in mind that there will be a summation of the stimulative effects, and use the stronger stimulants, tar, sulphur, resorcin, etc., only in weak concentrations.

On such locations as the scalp, eyebrows, eyelids and nose and in and about the ear, fissured, crusted and lichenified patches of eczema may be more conveniently and effectively treated by radium, with doses too small to produce erythema or result in epilation.

The ultraviolet ray should not be used in acute cases, but is of especial value in stubborn, chronic cases with secondary stephylococcus or streptococcus infection.

## DISCUSSION

**C. Brooks Willmott**, Louisville: Some fifteen years ago there was quite a discussion among specialists as to the distinction between so-called eczemas and dermatitis. At the present time we use those terms synonymously. The pathologic condition of both is essentially the same.

I just want to emphasize the fact that in the past, up to probably four or five years ago, eczema was known as the commonest of all skin diseases. Recently it has been superseded by ringworm in its various forms, some thirty or forty different types of ringworm. The usual mistake of the general practioner, and very often of the specialist in skin diseases, is that he does not look deeply enough into a case. He has a case that is an eczema at the present time, but the foundation of the thing is usually one of the forms or organisms of ringworm.

Most cases of ringworm of the hands and feet, or for that matter of other parts of the body, are converted, if they last long enough, into an eczema, in other words, an eczematous ringworm. You must treat the eczema before you treat the ringworm. Ointments and any sort of treatment which will cure the ringworm are entirely too strong for the eczema so you must use palliative treatment until you get the cracks and abrasions healed, and then go after the ringworm.

## THE COLON BACILLUS*

### A Comparison

Josephus Martin, M. D.

Cynthiana.

There are a number of varieties of bacilli normally occuping the intestines of man and animals, which, because they have similar characteristics and live in the colon, are generally grouped together and called colon bacilli.

Colon bacilli were first described by Emmerich in 1885.

Colon bacilli are generally nonpathogenic in man and are absorbed but little or not at all. The bacilli themselves are prevented from invading the tissues by the epithelial layer and the bactericidal properties of the body fluids.

Colon bacilli can, either by an increase in virulence or by a lowered resistance in the person, invade the tissues. We may, therefore, have colon cystitis, pyelitis or cholecystitis.

Pure cultures of colon bacilli have been found in children from one to five years of age, suffering from diarrhoea. Sometimes found in bad company, especially in peritonitis when they are associated with streptococci, occasionally with staphylococci.

Often after some other germs have been guilty of causing trouble in inflammatory conditions in the bile tract, the colon bacillus has been blamed because of its habit of satisfying curiosity.

Certain inflammations of the pancreas with multiple fat necrosis have been attributed to the colon bacilli. Members of the colon group are frequently supposed to be the cause of abscesses in the region of the rectum, urethra and kidney.

Broncho-pneumonia, lobar-pneumonia and pleurisy have been occasionally caused by colon bacilli, probably from blood sources.

Not a few cases of meningitis and spinal meningitis follow localized infection in infants. Some cases of endocarditis have been noted.

Now, after malaria and lagrippe have been excluded, the teeth, tonsils, adenoids and appendix removed, the sinuses explored and there is no relief, the surgeon steps in to see just what it is all about, the ultra scientist consulted and there is no relief, then of course the colon bacillus is to blame. Therefore, this germ is attacked from the ground, water and air. Occasionally the attack is a success, which encourages to renewed aggression. At other times this besieger, or maybe besiegers, often they go in pairs, succeed only in wresting a few hundred dollars from the sufferer's pocketbook.

There must be a scrapegoat in medicine as well as in law so it seems just at this time in the history of medicine that the colon bacillus is the it.

This germ is no respector of persons; infects both the high and the low. It had the nerve to become pathogenic in the abdomen of Chicago's mayor, and I am told that when thoroughly aroused it will even attack royalty.

Just at present there seems to be a disposition on the part of the colon vaccine advocates to attribute every pain and complaint within a radius of a few inches from the pubis to this germ. I have in mind a case where autogenous colon vaccine was prescribed by a man high up in the profession and directions were faithfully carried out for months. The trouble proved to be in the brain. Two other cases were advised to use the same remedy. Both refused, both are doing well.

At this time the ultra scientist seems very much in evidence. Of course, in time he will be under control, let us hope. Fewer appendices and fewer ovaries, let us hope also, are being removed.

Ignorance plus egotism in medicine is dangerous but when commercialism invades the realm of science an extreme danger to conservative medicine is reached.

There seems to be a disposition in the profession today to overdo things, overreach ourselves. As an illustration, take syphilis. Someone has said: "If a person is living peaceably with his spirochetes let that person alone." In other words, it is not wise to upset the balance of an adequate immunity which the patient has spontaneously developed.

Just as Dr. Bloomfield, California, has said: The physician must overcome the inferiority complex which makes him fear that unless he does as elaborate and extensive a "work up" as his colleagues he is behind the times. He further says that we are not supposed to discover in every patient every deviation from the normal.

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*Read before the Harrison County Medical Society, April 1933.

There are many other ways in which we overdo, all of which necessarily adds to the cost of medicine and gives opportunity for radicalism to spread and the unprepared doctor to go on exhibition. The sick person and family physician are hardly given time to get their bearings before neighbors and friend are in command. Then the over zealous specialist takes advantage of the situation. Often he is the so-called ultra scientist. At present a fast becoming commercialized profession seems willing to accept him, together with some of his half-baked theories.

In the meantime this colon bacillus, lying dormant, and inoffensive, is awakened by the noise some of these folks are making and becomes pathogenic and perhaps does cause some trouble.

Now, while it is true that the average life of this generation has been lengthened, yet with all this tampering and meddling it is strange, as John Wesley has said, that this body "should keep in tune so long."

Of course, there are times when we must accept accurately established scientific truths. There are times when we must take this colon bacillus seriously; then we should handle it after the latest and best approved practice. When it is located and known to be the offending organism, probably a vaccine is indicated or possibly some other method will result in its restraint.

Anyhow, "Prove all things, hold that which is good," then handle those proven good things, professionally, with commen sense, avoiding the modern frills and furbelows so much in evidence today when two or three are gathered together, around, about and over some feeble, helpless sick person.

I have had two purposes in writing this paper. (Lest I be misunderstood, let me say right here that I am in thorough sympathy with and fully appreciate the rapid strides made and being made in medicine and in bridled modern methods of diagnosis and treatment.)

One purpose, to give you what little information could be gathered about this much maligned and much talked about little germ. The other, to call attention to our beloved profession, which seems to exist in the minds of some solely for the purpose of traffic, for trade, tradition and its inheritance scorned. May its memories, at least, linger in the minds of those who have seen, felt and experienced its inspiration, and may these memories be in attendance at the last, "like one who wraps the draperies of his couch about him and lies down to pleasant dreams."

Will there be any who will deserve or who will merit such contentment? Will there be any who will at the last lie down to pleasant dreams because of remembrance of such a tradition?

As I put my ear to the ground and look around it seems as if I can hear the voice of Caesar saying *Et tu Brute.*

Will any of the old school survive? Will the typical country doctor stem the tide? Will any be left? Let us hope enough to curb, then leaven, before the unscrupulous money changers are in unashamed and undisputed control of the entire profession.

"For what shall it profit a man if he shall gain the whole world and lose his own soul."

Why should a person want to be just a member of a profession when he is not one of that profession?

In closing I want to make an interesting comparison. The colon bacillus, in its natural habitat, in its non-pathogenic state, can be favorably compared to the physician who goes about doing good, while the pathogenic colon bacillus can be compared to the adventurous, the unbridled doctor who breaks over the bounds of reason into the fields where self interests lie, but where the real physician, unless thoroughly prepared, fears to tread.

May this colon microbe cease to become unruly and may our profession return to its first love, its rightful heritage.

No doubt some will say: What is the use? Nothing can be done. Nothing will be done if we fail to voice our disapproval. We can at least continue to sing that song entitled: "Old Time Religion," then we can hum rather loud that other old tune: "Rescue the Perishing."

Now, I do not mention these old songs in a spirit of levity, but in all seriousness. Let there be a sympathetic understanding of the patient's bills, as well as a sympathetic understanding of the patient's ills. May our profession be saved from commercialism and for humanity's sake. May its pathogenic tendencies be restrained.

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**Relief of Prostatic Obstruction.**—According to Collings, small and moderate sized prostatic obstructions may be efficiently relieved under direct vision by the high tension cutting current through the cysto-urethroscope. Because of instrumental difficulty and prolonged cystoscopic manipulation, marked enlargement had best be relieved by prostatectomy. Nine of 150 private patients operated on died (on an average of two years) after operation of heart disease, carcinoma or intercurrent infection. Five per cent of all patients required a second operation to relieve them. Eighty-five per cent of this group have been relieved of their symptoms and residual urine up to eight and one-half years after operation—an average of four years for all.

# CHRONIC PANCREATITIS WITH DIABETES AND OBSTRUCTIVE JAUNDICE*

W. O. Johnson, M. D., F. A. C. S.

Louisville.

M. S. K., 62 years of age, male, white; May 31, 1932.

Chief Complaint: Pain in epigastrium, jaundice.

Past History: Fracture of right arm in childhood, typhoid in early life. otherwise negative.

Family History: Negative.

Present Illness: About two years ago, began to lose weight, and have excessive thirst. Glucosuria, diagnosed diabetic. Was put on modified diet and made apparently satisfactory recovery. About four weeks ago, had first attack of cramp-like pain over gall bladder area, which began after heavy meal, and about 11:00 P. M. vomited. Two days later jaundice appeared, and with this, had daily attacks of pain in upper right quadrant of abdomen at night. One attack was followed by a chill. Jaundice increased after each attack, and on the third day of jaundice, skin began to itch. Appetite poor; considerable gas after meals; headaches and dizzy spells; drowsiness and sleepy feeling; constipated, with clay colored stools; persistent jaundice.

Physical Examination: Fairly well developed and nourished male of 62 years of age; temperature 98 degrees, pulse 74. respiration 22; markedly jaundiced, with scabs, the result of scratching.

Eyes: Conjunctiva jaundiced.

Mouth: Teeth stained, poorly kept.

Neck: Glands palpable.

Thorax: Emphysematous type, few moist rales at bases, otherwise negative. Heart: Slightly enlarged to the left; systolic murmur at apex which is transmitted to axilla. occasional extra systoles heard. Blood Pressure: 140/66, arteries thickened.

Abdomen: Distended tympanitic, definite resistance and tenderness over gall bladder area; liver edge about two fingers' breadth below the costal margin, rather firm and somewhat tender, no masses palpable.

Extremities: Marked radial deviation of the right wrist, the result of childhood fracture.

Diagnosis: Chronic cholecystitis, choledocholithiasis, arteriosclerosis, myocarditis, diabetes and dental caries.

Laboratory Work: Red Blood Cells: 4,770,000; White Blood Cells: 7,350. Hemoglobin: 96.6%; Color Index: 1. Polymorphonuclears: 59%, PME: 1%, Monocytes: 12%, Lymph.: 28%.

Urine Analysis: Amber, acid in reaction, sp. grav. 1025, albumin trace, sugar two plus, occasionally finely granular and hyaline cysts, cylindroids few squamous and epithelial cells.

X-Rays of Gall Bladder: Negative.

Coagulation Time: Six minutes and thirty seconds.

Bleeding Time: Two minutes.

Blood Sugar: 256 mgm. per 100 cc.

Patient put on test diabetic diet by Dr. J. M. Kinsman, 40-C 50-P F-90 and X units U 20 Insulin.

6-1-32: Blood sugar: 200 mgm. per 100 cc., Diet of 90-C., 70-P., 90-F., with units X tid. ac. of U 20 Insulin, on which the patient was kept, and blood sugar gradually dropped to 154 mgm. per 100 cc. in six days; general condition satisfactory, jaundice less. 10 cc. of 10% Calcium Chloride given intravenously.

Cholecystgastrostomy, 6-7-32 under spinal anesthesia, finding diffuse inflammation in upper right quadrant of abdomen, involving liver and its tributaries, and producing obstructive jaundice by acute pancreatitis; satisfactory recovery from operation.

Patient given 100 cc. of 50% glucose with 20 units U 20 Insulin every two hours for first twenty hours; with examination of each specimen of urine, and with presence of sugar in urine, Insulin was increased ten units. On second day, patient developed bronchitis and was put in oxygen tent. Fluid level of 3000 cc. daily was kept up by subcutaneous infusions. On the fourth day, nourishment by mouth was begun, five units of U 20 Insulin given with each 200 cc. of 5% glucose taken. Jaundice on the third day almost cleared up. Patient gradually improved, and on the twelfth day was given P.-60, C.-90, F.-50, (1050 calories), with 25 units Insulin daily, which did not allow appearance of sugar in urine. On the nineteenth day, was given 1570 calorie diet with 40 units U 20 Insulin daily, up and about, and given diabetic instructions.

Discharged on the twenty-fourth day, wound healed except for small granulating area at the site of drainage tube. Fasting Blood Sugar: 154 mgm. per 100 cc.; gaining in weight on 1570 calory diet with 30 cc. U 20 Insulin daily. bronchitis cleared up, general condition good, no jaundice.

Patient had uneventful convalescence at home, no sugar in urine since leaving hospital. At the end of six weeks Insulin discontinued. At the end of two months post-operative fasting sugar: 68; gain of eleven pounds in weight, modified diet. general condition excellent. At the end of the fifth month, patient on modified diet gain of fourteen pounds in weight, general condition excellent, returning to work; has never had re-appearance of sugar in urine or jaundice, or pain since first week after operation.

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*Delivered before the Jefferson County Medical Society,

This case exemplifies a diffuse inflammation in the upper right quadrant of abdomen with obstructive jaundice due to pancreatitis. With establishment of continuous biliary drainage by cholecystgastrostomy, the inflammation became quiescent and diabetes and jaundice cleared up.

## DISCUSSION

**J. Murray Kinsman:** There are two things in connection with this case, with which I was in some degree associated, that appeal to me as being particularly interesting, and one of them was rather unusual. The fact that this patient with a fairly severe diabetes, (blood sugar 256) came through the operation without any acidosis and with only a mild degree of broncho-pneumonia, is rather remarkable. We were worried for fear we would have difficulty in keeping the acidosis down, but our fears were groundless.

Another interesting fact is that, although this patient had an apparently severe diabetes for more than two years and had been losing weight, yet within five months after operation the blood sugar had declined to 69, he had not had any insulin for a long time, had been on a fairly high caloric diet, and was feeling pretty well.

It seems to me that, in addition to the chronic pancreatitis, which he undoubtedly had, there must have been a large amount of inflammatory change which might be termed acute. It is possible that with involvement of the Isles of Langerhans, he had acute inflammatory changes superimposed upon the chronic changes which had taken place, and upon removal of the obstruction, allowing free drainage, this acute condition in the pancreas cleared up. I do not see how we can otherwise explain the fact that a severe diabetic became a non-diabetic, so to speak, so soon after operation.

I would like to ask Dr. Johnson what he meant by "negative x-ray of the gall gladder?" Does he mean that there were no shadows indicating stones on a flat plate, or does he mean that with the administration of dye, orally or intravascularly there was a shadow and that it was interpreted as normal? I am afraid we are prone to use the term "negative gall bladder picture" a little too freely at times and it becomes confusing.

**R. Arnold Griswold:** Dr. Johnson is to be congratulated upon the excellent result he has obtained in this case.

One point I would like to emphasize is that pancreatic disease of an inflammatory nature is often very difficult to diagnose. I recall two cases very vividly. The first was my own father, who was a surgeon, 74 years old at that time. He was suddenly seized with a very acute epigastric pain, which did not radiate to either shoulder, accompanied by a slight elevation of temperature and a slight increase in the white cell count. His own diagnosis was acute pancreatitis and I thought that, being a surgeon, he was trying to find something about one hundred per cent fatal, and disagreed with him. He desired operation and I refused to permit it. Three days later he presented sugar in his urine, which he had never had before. This persisted for three months, with a blood sugar of about 200, and then gradually disappeared. Later he had another similar attack, also followed by the appearance of sugar in the urine, which again gradually disappeared. In neither of these attacks was he jaundiced; apparently the disease did not involve the head of the pancreas but caused pressure upon the ducts.

The second case was a woman about 35 years old, with a perfectly typical acute gall bladder history. I saw her about forty-eight hours after her admission to the hospital, at which time there was a tender mass in the right upper quadrant of the abdomen, with elevation of temperature and white cell count of about 20,000; no tenderness in the mid-line or at the left; it was all in the upper right quadrant. The pain was referred to the left as well as the right shoulder, a fact to which we did not attach enough importance. She was operated upon two weeks later for removal of the gall bladder and we found the omentum covered with spots of fat necrosis.

These two cases illustrate what perhaps occurs in a great many cases like the one Dr. Johnson described. The trouble is called acute indigestion and perhaps later the patient becomes diabetic; or as in Dr. Johnson's case jaundice develops from pressure on the common duct and the head of the pancreas.

**J. Garland Sherrill:** Dr. Johnson has given us a report that is well worth while. My own opinion is that gall stone disease, particularly the type in which there is infection in the ducts or in the head of the pancreas, and perhaps pancreatitis with it, is best treated by drainage—either direct drainage to the outside of the body or through the intestinal tract. Infection in the pancreas is frequently caused by obstruction or blocking of the outlet into the intestine, either by stone or mucus, and the pancreatic function becomes impaired.

I believe that, if the gall bladder condition were investigated early in many cases of diabetes, these obscure conditions might be cleared up in many instances. Dr. Johnson made an anastomosis successfully and the treatment at operation resulted in great benefit to the patient.

**W. O. Johnson,** (in closing): In reply to Dr. Kinsman's remarks concerning the x-ray picture, I did not use the Graham-Cole method of gall bladder visualization, because, in view of the patient's condition, I did not deem it justifiable to subject him to the vomiting and strain which may have followed upon giving him this test. Therefore, we made only a flat plate of the gall bladder which was negative for stones, and did not reveal any other evidence of pathology.

## WHEN A MAN IS A MAN*

J. F. Dunn, M. D.

Arlington.

Some time ago I heard a prominent physician of Memphis, make the remark that, “The medical profession has been trying for 200 years to get the public to believe that we are practicing medicine for the love of it.” “Now, said he, “they are just beginning to believe it.

The doctor at present who does not love his work is certainly out of luck. Just now we are being put to the crucial test as to who does really love his task.

For the past half century the medical profession has been in clover. The advancements that have been made are far beyond imagination.

The requirements of recent years are so great that only the educated and determined fellow can matriculate in our schools, which thereby eliminates the semi-illiterate, who, believing it to be a soft snap might otherwise slide by the exams, get his diploma and settle down in some quaint corner only to find that he is unqualified and unwilling to go up against hardships and finally joins the large army of quacks or gets out of practice.

Do not understand me to say that the only men who are qualified to practice medicine are those who are highly educated before entering the study of medicine, for I do not. Some of our best physicians of today had very little preliminary work. But I do say that any man who does not possess the four following qualities viz: character, ambition, lofty ideals, and sincerity of purpose, which are the four prerequisites of any calling our profession will fall upon the rocks long before he reaches the door of the medical school.

When many of us entered the medical college the only requirement necessary was the presentation of a first class teacher's certificate, which was equivalent to the completion of the eighth grade common school course. Now on top of this the young man of today must have four years of high school and at least two years of college work before he can matriculate.

So, we feel that this preliminary training is amply sufficient to prepare him for the great study ahead.

The medical schools have spent thousands of dollars in equipping themselves in order to give these highly qualified young men every thing they so richly deserve and to qualify them to go out into the world and render real service to mankind.

The young doctor of today who had his required amount of preparatory work and his four years in medicine, giving complete courses in laboratory work, blood chemistry, gastric analysis and many other things that were unheard of in our school days, and then his year as intern in some great hospital which we did not receive, is amply able to cope with the situation.

How do we, who graduated 20 or 30 years ago, whose preliminary training was limited and whose schools were, as we see it now, poorly equipped as compared to the present and who did not get an internship, shine in society in company with the young doctor of today?

Just a short account of our stewardship and we will pass on to the serious part of our discourse.

What did we do with our talents? Did we hide them under a bushel? Nay, verily. A few of our number fell by the wayside soon after graduation; a small number were contented to settle down on some roadside and take whatever came their way, but the rank and file have been on the job day and night. We have taken post graduate courses from time to time; we have attended the best medical societies, and we have received the best medical journals in our nation. Many have equipped themselves with small laboratories and microscopes; some have small x-rays. We also have the necessary instruments to do any operation that we desire to undertake. Still others have specialized in certain branches. So, it is surprising to note the great advancements that have been made throughout the country. At the present time our people rarely ever have to go off to the big city for a diagnosis.

So, after all, the experience which we have had pretty well tallies up with the extra amount of training the young doctor of today gets.

Taking it as a whole, medical science has been placed upon the highest plane of learning.

It has been a source of great pleasure to practice medicine especially since the Great World War, for we have had a sense of security in that we were qualified to handle the situation and we could charge a fee adequate to our service, which the people were willing to pay, for they felt that they were getting value received for their money. Therefore, we were happy and prosperous. We were looking forward to bigger and better things in life.

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*Read before the Carisle-Ballard County Medical Society, December 6, 1932.

Then in order to lay up something for a rainy day, many of us invested in land; some bought bank stock; some became directors or other officers in their hometown banks; while still others invested in the stock market. Every thing was looking up and it seemed that we had reached the land of milk and honey. Then, all of a sudden, in the early part of 1931, out of a clear sky there came a crash and the bottom fell out, the result of which all of you are sadly familiar. Banks failed—the price of land went down to naught, the stock market failed, the price of farm produce went so low that it could scarcely be sold at any price. Merchants failed, factories closed and millions lost their jobs. Notes and accounts became worthless. Men once wealthy became penniless. In fact, there is not a human in our nation, whatever his calling might be that has not felt the sting. Worst, of all, the people have lost confidence in the nation and in one another. There is not a man in my territory whose note is worth a dollar.

I am sure the medical profession is hit harder than any other class of people. Most of us have lost our savings and now we can not collect, borrow. nor overcheck—but still we are expected to pay cash. Unlike men in other walks of life, who can cease to operate and cut expenses, we must carry on for the sake of suffering humanity.

The hospitals all over our nation have become wrecked. The larger the hospital, the greater the jolt. Many of them have closed. Thousands of nurses have lost their jobs, while the wages of the remainder have been reduced to a minimum. I know of registered nurses who are working in accredited hospitals at salaries of $2.50 per week. They are crying for jobs and many of them are willing to work for their board.

Many of the doctors have even cashed in on their life insurance policies in order to get money with which to carry on. Some have considered changing their locations, but, politically speaking, "It is dangerous to swap horses in the middle of the stream." Certainly if a doctor can not make a living where he is already established, he could not go to a new territory and earn a livelihood while building up a practice, for the financial strain is bearing down as heavily upon one town as well as the other, be they small or large.

So that is the appalling situation we are facing today, and the sad part of it is that all of our hopes and aspirations have been shattered. We are stranded in the desert. So, what are we going to do about it?

The people who have been standing by us all these many years and have made us what we are, are in the same boat—"busted." Still they are on their beds of afflictions and need our tender watchcare more so than ever before in the history of our nation.

We cannot see the end of the road.

During the political campaign the Republican leaders told us that we had reached the corner that we had been hearing about so long and that if we would put them back in power, prosperity would soon be staring us in the face, and that if we put the Democrats in power all the churches, schools and hospitals would fall asunder and the weeds would grow up in the yards. On the other hand, the Democrats said the above statements are false, but if you will put us in power we will tear down the great tariff wall that is now around our nation and balance the budget, then, behold prosperity!

Which of these prophesies will come true we can only wait and see.

We are passing through the dark age in medicine. Never before in the history of our nation have we faced such a deplorable condition. I have talked with doctors from various parts of the United States, from the big city down to the humblest village and find that all alike are feeling the pangs of the depression. Many of our city brethren who have enormous office rents to pay as well as many other expenses are running far behind. So, those of us here should rejoice in that we, by chance, happened to be located in small towns where our expenses are meager as compared to our city fellows.

So we do not know which way to turn. Ofttimes we feel like "taking out" and quitting, but we all know the opinion the world has of a "quitter."

Most of all of great men in history had the same temptation at some time in their careers.

Suppose General Washington during that dreadful winter at Valley Forge, had laid down on us, what would have been the inevitable result? Suppose the historical Paul Revere on that dark and stormy night had said, "There is no use." Then, again suppose our present Senator, Alben W. Barkley, the man who so ably delivered the keynote speech at the Democratic convention at Chicago, had given up when in poverty, he had to make fires and sweep the school building at old Marvin College to educate himself. Where would he have been today?

It is very likely that none of us here will ever go down in history, but I dare say that we have all done deeds that are even greater than many whose names are now stamped on the pages of history.

Just a little verse of poetry with which you are all familiar, expresses the thought I am trying to convey more clearly than we can write on pages:

> Lives of great men all remind us
> We can make our lives sublime,
> And departing leave behind us
> Footprints on the sands of time.

I want to say just here that if the depression continues over a much longer period there won't be anything left to tell the tale but a few foot prints.

In conclusion I wish to say that the greatest service that can be rendered on the face of the earth at a time like this is to minister unto the sick and afflicted all around us who are in rags and starving. For we know it has been said that, "In as much as ye did it unto the least of one of these, ye did it unto Me."

So let me admonish you in all sincerity to carry on the good fight to the end, even though it looks dark, gloomy, and hopeless. This is a real test of manhood in our profession, and the men in our ranks who have the courage to stand like Stonewall Jackson did, will surely reap a reward when we get around the corner.

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**Present Status of Vitamin $B_2$ (G).**—According to Barnett Sure, Fayetteville, Ark. (Journal A. M. A., July 2, 1932), during the last few years it has been definitely established that the dietary factor which McCollum and Kennedy in 1916 termed water soluble B, generally recognized as a growth-promoting and appetite stimulating substance, is a mixture of vitamin B or vitamin $B_1$ and G or $B_2$. One of these is relatively thermolabile and has antineuritic and growth-promoting properties; other is more stable after heating under pressure and also possesses growth-promoting properties and functions in the prevention and cure of pellagra-like symptoms in the rat. The former is also referred to as the antiberiberi, and the latter as the antipellagric vitamin. Nomenclature of these two dietary essentials has not yet been finally settled. The American biochemists have adopted the letter B for the antiberiberi factor and the term G for the antidermatitis vitamin. The author employes the term $B_2$, tentatively adopted by the biochemists of England, to represent the antipellagric vitamin. He views the literature on this vitamin from the standpoint of its physical and chemical properties (thermostability, fractionation and concentration, and reaction with nitrous acid), and its relation to nutrition (quantitative biologic method of determination, distribution of vitamin $B_2$ in food materials, vitamin $B_2$ and anorexia, vitamin $B_2$ and lactation, and the influence of vitamin B deficiency on pathologic changes in blood and tissues).

## SYMPOSIUM ON OBSTETRICS

## COMPLICATIONS OF PREGNANCY EARLY AND LATE HEMORRHAGES*

L. C. Redmon, M. D.

Lexington.

Some one has said that "pregnancy is a disease of nine months duration"—and when one studies the many different conditions that may complicate it—the statement appears to be true.

Pregnancy does not confer immunity against any disease, in fact, it makes the woman more susceptible to general diseases, and certainly aggravates existing general and local conditions. Given a function that brings about so many general and local changes as gestation, it is indeed surprising that it can be completed without becoming pathologic.

The adjustment of metabolism, of the blood, of the heart, of the digestive tract and the altering of the uterus and vagina to nourish and develop the embryo and finally the development of the mechanism for the expulsion of the product of conception, would lead one under other circumstances to call it disease.

It will be impossible in the allotted time of this paper to consider in any sort of intelligent way the complications of pregnancy; therefore, it is my intention to consider in a general way the classification and then give some especial attention to the hemorrhages of pregnancy, namely, the bleeding of early pregnancy caused by abortion, extra uterine pregnancy and cysts and the bleeding of late pregnancy caused by ablatio placentae and placenta previa.

Dr. DeLee in the last edition of his text gives a classification of the pathology of pregnancy which we will quote as written.

(1) Diseases of the Mother Incidental to Pregnancy—

(a) General. Toxemia; hyperemesis gravidarum; ptyalism; gingivitis; eclampsia; the kidney of pregnancy; acute yellow atrophy of the liver; chorea; blood affections; skin diseases, such as pruritus, fibroma molluscum, herpes gestatonis, impetigo heretiformis, toxic efflorescences. (A new term, gestosis has been introduced to designate these toxemic manifestations in pregnancy.)

(b) Local. Varicosities; relaxation and softening of the pelvic joints; extra uterine pregnancy; retroflexion of the gravid uterus; ante-fixation of the uterus; abortion; abruptio placentae; placenta previa.

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*Read before the Kentucky State Medical Association at Louisville, October 3-6, 1932.

(2) Diseases of the Mother Accidental to Pregnancy—

(a) General. The exanthemata-measles, scarlatina, typhoid, etc.; sepsis, syphilis; diseases of the lungs—tuberculosis, pneumonia, etc.; of the heart; of the kidneys; of the liver; traumatism.

(b) Local. Deformities of the uterus; the local inflammations—vulvitis, vaginitis, cervicitis, endometritis, peritonitis, gonorrhea; tumors, as fibroids, carcinoma, ovarian cysts.

(c) Diseases of the Ovum The Child, Monsters (teratology); disorders of the mother which affect the child; the injuries of the fetus.

(d) The Membranes. Hydatidiform mole, polyhydramnion, oligohydramnion.

(e) Placenta. Abnormal shape, size and number; the white infarct; syphilis; edema, calcification.

The majority of the above conditions complicating pregnancy are preventable and can be made so by the proper prenatal care which should be available to every pregnant woman.

Hemorrhage is one of the most common complications in the early months of pregnancy and when it occurs it is usually indicative of abortion, extra uterine pregnancy or vesicular mole. Occasionally it is a sign of cervical erosion, carcinoma of the cervix or polypus.

The belief that normal menstruation may occur during the early months of pregnancy and occasionally throughout term has been disproved by the modern conception of physiology of reproduction and its relation to the menstrual cycle.

In a report of 60 cases of abortions reported by Toronto General Hospital in five years the following causes were recorded:

| Causative Factors | No. | Resulting Complications | No. | Other Complications | No. |
|---|---|---|---|---|---|
| Selfinduction | 90 | Uterine infection | 57 | Cervical erosion | 21 |
| Retroversion | 48 | Secondary anemia | 10 | Chronic excervicitis | 10 |
| Syphilis | 10 | Pelvic inflammation | 21 | Cardiac lesions | 10 |
| Decidual endometritis | 5 | General peritonitis | 3 | Carcinoma of cervix | 3 |
| Subacute salpingitis | 5 | General septicemia | 5 | Acute cystitis | 2 |
| Toxemias | 5 | Bronchopneumonia | 4 | Acute gonorrheal urethritis | 2 |
| Uterine myomas | 4 | Subphrenic abscess | 1 | Gastrointestinal lesion | 4 |
| Deep cervical tear | 2 | Phlebitis | 1 | Colloid goiter | 1 |
| Pulmonary tuberculosis | 2 | Pyometra | 1 | Ventral hernia | 1 |
| Lobar pneumonia | 1 | | | Ovarian cyst | 1 |

The treatment of this condition varies with the condition of the patient on admission. For threatened abortion our treatment is absolute rest in bed and sedatives as often as necessary to control the pain. If it becomes inevitable or incomplete we complete it by the easiest and safest method. Three ways are considered; Ergot and quinine, packing the cervix and vagina with gauze or dilatation under an anesthetic removing the debris and wiping out the uterus with iodine or mercurschrome.

We use the first method in infected cases when the ovum, or part of it, is through the external os, and the second method when necessary to control hemorrhage and to complete abortion. When this fails we use the last method. We do not curette an infected uterus but dilate the cervix and remove the uterine contents with a sponge forceps or the finger if dilatation is sufficient to wipe out the cavity thoroughly and only packed when necessary to control bleeding, believing that proper drainage is necessary. We only mention ectopic gestation and vasicular mole as causes of bleeding in early pregnancy as both conditions are subjects for more consideration than can be given here.

### Ablatio Placentae

Partial or complete separation of a normally situated placenta occurs comparatively frequently in the last weeks of pregnancy and during labor. It is a very serious complication and is often fatal. Maternal mortality averaging from 4 to 6 per cent and the fetal mortality from 65 to 95 per cent. According to Holmes it occurs more frequently than placenta previa and he places its incidence as 1-200. Polak reports 16 cases in a series of 4878 consecutive cases—an incidence 1-305. These cases represent only those diagnosed before or during labor believing that many cases with only mild symptoms are overlooked. Ablatio placentae may be apparent or concealed.

In the apparent type the lower margin of the placenta separates and the blood separates the membranes from the uterine wall and is discharged as a frank hemorrhage increasing at the time of uterine contractions. Even in the apparent type the hemorrhage is primarily concealed, for the classical symptoms are evident before vaginal bleeding.

Polak in an article on this subject published in the American Journal of Obstetrics and Gynecology, February 1931, says of the concealed type that the blood accumulates in the uterus and anyone of the following conditions may obtain:

1. The placenta may become detached at the center and the periphery remain adherent. Such a detachment produces a node or boss on the surface of the uterus over the site of the retroplacental blood clot, with resulting uterine asymmetry. The overlying uterine area is exquisitely sensitive and atonic.

2. The placenta may become detached at one edge, upper or lateral, which allows the effused blood to lift the membranes from their uterine attachment. As the blood accumulates, it further separates the placenta and overdistends the uterus.

3. The placenta may be detached at one edge, partially lifting the membranes beyond the margin when the pressure of the accumulated blood may be such as to cause rupture into the amniotic sac above the placental site and allow the hemorrhage to produce an intraovular distention of the uterus.

4. Finally, separation may take place at the lower edge of the placenta and of the adjacent membranes, but owing to the ball valve action of the fetal head which occludes the lower segment of the uterus, the blood may be prevented from escaping. It is in this type of case that upward displacement of the presenting part confirms the diagnosis by allowing the escape of blood and blood clots.

The causes may be grouped as predisposing or exciting.

The predisposing-toxemia, torsion and endometrial disease. The exciting-trauma, such as falls, blows and violent muscular actions, such as lifting heavy weights. During the period when pituitrin was used to expedite first and second stages of labor ablatio was more frequent.

Symptoms: This condition usually occurs in the last weeks of pregnancy. An early diagnosis is most important and should be made before alarming symptoms develope. The woman usually a multipara at or near term or during the first stage of labor will suddenly develop a sudden severe abdominal pain referred to the region of the uterus or above the pubis. There is generally a history of chronic nephritis, high blood pressure, edema or albuminuria. The pain is generally accompanied by faintness, pallor and some degree of shock. Vaginal bleeding may or may not be present. Abdominal examination at this time will reveal a sensitive tense uterus and by vaginal touch the cervix and lower segment will seem pushed down into the vagina giving prominence to the vaginal part of the uterus, although the presenting part will be at the brim.

When the condition arises during pregnancy with a non-viable foetus the treatment is similar to an inevitable abortion and depends on the degree of dilatation and amount of bleeding. When it occurs in the latter months the indications are to combat shock and control bleeding. This is done by morphine, heat to the body, typing and grouping for an immediate blood transfusion.

It should be accepted as a general rule that no operative procedure should be attempted on a bleeding case before a blood transfusion is given. The hemorrhage is controlled by emptying the uterus and packing. If there is a living, viable child, in a primipara with unprepared parts, not in labor or even in first stage, blood transfusion followed by Cesarean section should be the method of choice.

Polak in reporting two series of cases one in 1922 and again in 1930 brings out the following clinical facts:

1. That minor degrees of ablatio are relatively frequent accidents and contribute to the uncontrollable part of fetal mortality.

2. That both clinical experimental studies show chronic nephritis to be the most constant predisposing cause.

3. That the diagnosis is apparent from the history and the symptom-complex.

4. That the prognosis depends largely on an early diagnosis and the prompt establishment of rational treatment.

5. That trauma, blood loss, and toxemia reduce individual resistance—all three are commonly present in ablatio.

6. That the conservative plan instituted early with timely and generous transfusion offer the woman the best chance, and finally, in those rare cases in which the uterine muscle bundles are infiltrated and blood effusion takes place into the subserous connective tissues, hysterectomy, under local anesthesia, after preliminary transfusion, is the procedure of choice.

### PLACENTAE PREVIA

Treatment. In cases of complete or partial placenta previa only three methods are worthy of consideration. First Cesarean section; second, cervical bag and, third Braxton-Hicks version without extraction. A placenta previa death is usually from postpartum hemorrhage. The two distinct reasons for postpartum hemorrhage in these cases is disturbance of the placental site and injury to the cervix brought about by manipulation necessary to deliver the child and, second general atony and shock brought about by loss of blood and the effect of this condition on the contractile powers of the uterus.

Bill recently reported two series of cases collected from the literature as a comparison of mortality.

1. Cases treated by the older methods including manual extraction, bag, some Cesarean operations and otherwise with a maternal mortality of 9.68 per cent and the other series treated by Cesarean only with mortality of 1.78 per cent.

The following conclusions are deducted from the literature:

1. All cases of placenta previa should be treated in the hospital if possible without previous vaginal examination or packing.
2. The prophylactic blood transfusion before any operative procedure.
3. Keep away from the placental site as much as possible.
4. Cesarean section should be performed whether the child is alive or dead.
5. In the marginal type with dilatation of the os and head engaged delivery may be completed with forceps, or if the head is not engaged podalic version may be performed.
6. Emphasizing again the prophylactic blood transfusion before operative procedure and keeping our manipulation away from the placental site.

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**Some Pressing Problems in Allergy.**—J. H. Black, Dallas, Texas, (Journal A. M. A. July 2, 1932), points out that in spite of the fact that the treatment of allergic conditions is fairly satisfactory, the fact remains that treatment is largely empiric. Advantage is taken of the fact that allergic persons frequently show skin reactions to their respective allergens to determine the specific allergenic substances, but there are many irregularities found in skin reactivity and the reasons for them are imperfectly understood. Treatment with the substance to which the patient is sensitive frequently produces good results, but there is still much room for argument as to the mechanism underlying the response to treatment. Some of the problems found in an attempt to explain these conditions are due to deficiencies in the knowledge of immunology in general, but some of them may be solved by careful, concerted study by the clinical investigator and the laboratory worker. In this field where animal experimentation may fail to reproduce human reaction, accurate observation of carefully controlled patients may provide the material for the solution of some vexing problems. Of these problems the author discusses the following: (1) basis for hereditary influence: (2) relationship of endocrine organs and involuntary nervous system; (3) relation of region to clinical hypersensitiveness; (4) reactivity of the shock organs; (5) local immunity of sensitization; (6) rate of absorption of allergin, and (7) sensitization to nonantigenic substances.

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# THE PUERPERIUM AND ITS COMPLICATIONS*

N. C. Witt, M. D.

Franklin.

The puerperium is defined as the period of time elapsing between completion of the third stage of labor and the woman's return to her everyday duties. Its duration is usually about two weeks. Physiologically and normally the woman is incapacitated for work during this time.

The puerperium is a stage of quietude; it is a post-operative stage; a condition of "the wreckage following the storm" and one in which normally restitution and restoration are inaugurated.

It marks the end of months of anxiety, self denial and discomfort on the part of the mother, it signalizes the completion of nature's greatest act—reproduction. It should be a time of congratulation and joy to the mother, the attending physician and, of course, to the partly subdued, yet proud and self conscious father.

Strictly speaking, there are but a few complications encountered throughout the puerperium which have their origin or incidence in this stage because as stated it is a period of relative inactivity. The complications depend very largely upon the difficulties and complications of the preceding stages.

A case with proper prenatal care, with a smooth and clean delivery should have an uneventful puerperium. Conversely, a case improperly handled, a case badly traumatized, one in which correct aseptic measures are neglected is more than likely to have an alarming and stormy puerperium.

For purposes of classification, the complications have been divided into non-infectious and those due to infection. Under the first may be placed hemorrhage, slight, marked or profuse; syncope, urinary retention, ulcers throughout the parturient canal following trauma in delivery, secondary anemia and later subinvolution of the uterus.

Occuping an intermediate zone between these two classifications is yet another—that of retention of placental bits and membranes in the uterine cavity. We find a distinct overlapping in many instances, hence its position in the classification outline. This complication occurs with comparative frequency and may or may not prove dangerous. In the simple forms there will be a disintegration and sloughing of these retained particles. The presence of this decomposing material and absorption of its products will be characterized by a chill, high fever, and an offensive lochial discharge. The onset is abrupt, the patient is as sick the first day as at any time during the course and recovery is usually prompt.

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*Read before the Kentucky State Medical Association at Louisville, October 3-6, 1932.

On the other hand this devitalized tissue in the uterus forms an attractive media for bacteria and it can be the beginning point of puerperal fever of infectious nature. We, therefore, assign to retained membranes a border line position in our infectious and non-infectious complications.

Most of the complications mentioned thus far are of minor importance. Combined and in an active form, they would not approach in gravity the potentialities of the other group—infection.

At the outset we should bear in mind that nature has culminated her greatest feat with a major operation and has through necessity staged it in a field which can not be made surgically clean. Ideal avenues have been opened for the entry of infection.

This, as in other instances, is a question of degree. Factors determining are amount and virulence of the infectious agent, physical condition and resistance of the woman and, to a lesser degree, remedial measures which may be employed. Its scope may be from the mildest type with but little symptomatology to that of extreme degree resulting in death.

Typical of the latter is a beginning fever, altered lochial discharge, a hard bounding pulse, a sense of foreboding on the part of the patient and a daily increase in the severity of all untoward symptoms. Endometritis, metritis and peritonitis in rapid succession appear upon the scene. Should the patient continue to survive large abscesses may be found in the pelvic region of the peritoneal cavity. Pyemia and bacteremia will be found in aggravated cases. With the blood and lymph streams polluted, tissues and organs remote from the pelvic cavity are in line for invasion. Examples are phlebitis involving particularly the large veins of the thigh, septic endocarditis and embolism.

It would be useless and tiresome to attempt to name all the body structures likely to suffer damage in a flagrant puerperal infection. The merciful intervention of death may alone control its spread.

We have endeavored to outline some of the complications of the puerperium. Nothing new has been offered and the manner in which the old has been presented should cause no essayist to revise his paper. In conclusion, we would urge that everyone carry home one thought, one determination. Let us dedicate ourselves anew to the subject of obstetrics. If we cannot all be highly trained and equipped specialists, let us at least refresh ourselves on the fundamentals of this all-important branch. Let us not be mere masculine midwives but doctors alert to danger signals throughout the entire puerperal course. Then may we confidently expect a puerperium free of complication and disaster.

## DISCUSSION

**Edward Speidel, Louisville:** First of all, we do not consider Cesarean section a treatment for eclampsia unless some other complication such as a contracted pelvis makes it necessary to resort to abdominal delivery instead of to vaginal. Recent developments in eclampsia should be of interest to you For years we have been examining the blood to find a specific poison which in our idea was the cause of eclampsia, and now we learn that the condition can be explained upon simple physiological grounds. In pregnancy the woman has an excess of blood, hydremic in character, in the latter months of pregnancy. This penetrates the tissues very readily. If there is a kidney deficiency, retention of fluids at once takes place in the body, and this is first recognized by a rapid increase in weight. It shows itself secondly by edema, first of all of the feet and of the face, and then of the rest of the body. Then the edema affects the internal organs, the liver, the lungs, and finally the brain, and with edema pressing upon the brain in its hard, bony casing, the result is a cerebral anemia. The heart attempts to combat this cerebral anemia by pumping more violently, thereby increasing the blood pressure If the edema in the brain continues, then the cerebral anemia is carried so far that convulsions finally occur.

That is the latest explanation of the cause of eclampsia, and based upon that etiology, the treatment now advocated is dehydration, and in consequence in the simple cases of pre-eclamptic toxemia the treatment consists in absolute rest in bed, no food or water for the first twenty-four hours, then the amount of urine that is excreted during the twenty-four hours is measured, and fluid intake each day is limited to the amount of urine secreted the previous day, supplemented by dry solid food.

If the case is of the severe type, the treatment is supplemented by intravenous administration of 50 c. c. of 50 per cent glucose, the object being to reduce the edema in the brain. A secondary action of this glucose is diuresis at the same time. If that is not sufficient to affect the condition, then spinal drainage is resorted to in addition to this.

If the condition actually becomes eclamptic, then the sedative employed is the one mentioned in Dr. Rutherford's paper, and seems to be the one finding most favor, that is two to three grains of sodium luminal intramuscularly, repeated as necessary. Morphine is avoided if possible because it increases blood pressure.

The eclamptic treatment consists of the intramuscular injection of sodium luminal and then the intravenous introduction of 50 per cent of glucose repeated every six hours as needed. In addition spinal drainage, and as a general thing under this treatment the condition subsides. In addition to this, magnesium sulphate is used orally, if the patient is conscious, and if not it is introduced into the stomach through the stomach tube, the object being again to dehydrate by watery evacuations from the intestinal canal.

No forcible delivery is resorted to in the circumstances. We do not resort to Cesarean section or to artificial dilatation of the cervix, but in most instances it is claimed that the eclampsia was controlled. In our experience in the City Hospital (we have not used this method entirely, we have used part of it) we find that by using the conservative treatment our results in regard to mortality are much better than they were when we formerly used the radical treatment.

**J. T. Reddick,** Paducah: I have all during my professional life been very much interested in the subject, and have done a comparatively large number of cases. I believe that the majority of obstetrical complications could be obviated to a very great extent if we would all have the prenatal care of our expectant mothers. I have not had a death from puerperal eclampsia in many, many years , perhaps twenty-five or thirty years, and I haven't had a case of puerperal eclampsia in my own practice for a great number of years, but my patients are trained, most of them, to put themselves in my care as soon as they know they are pregnant, and I look after them through the months

I come before you mainly to mention ine remedy that I have been using for forty years. I believe it has not been mentioned so far in the treatment of puerperal eclampsia, and that is tincture of veratrum to control the convulsion. I know some of you will smile at that because it is a controversial question, but having had uniform results from it for many, many years, I am loathe to give it up. I give thirty drops of Norwood's tincture of veratrum and if a patient has eclampsia, I give her that hypodermically and repeat it in fifteen, twenty, twenty-five drops at frequent intervals, I mean every two hours if necessary until I get the pulse down to 55 or 60. It is an old remedy but it has served me so well that I wouldn't give it up at all.

**J. B. Lukins,** Louisville: Eclampsia is a condition that usually calls for quick action and our best judgment. It is essentially, I think, a non-surgical condition usually, but there is a certain small percentage in which we surgeons are called in consultation and in which I think we should not hesitate to assume responsibility. Cesarean section is not indicated in most cases of eclampsia, but in cases that are seen early before extensive manipulation has been made and in cases of contracted pelvis, Cesarean section is the remedy of choice. I have operated many such cases with most gratifying results.

**B. J. Lammers,** Louisville: Many years ago I was called while eating supper to see a case and by the time I got to the patient she had had one convulsion. Before she had the second convulsion I gave her four ounces of sulphate of magnesium. She had some thirty-odd convulsions afterwards. I called in three other doctors and several of them recommended veratrum viride. Being a younger man I carried out their instructions and got no results from it, but in the meantime my four ounces of sulphate of magnesium got in its work and when the other doctor was away I took it on myself to give this patient a half grain of morphine and the convulsion was controlled immediately.

I should like to mention that before I used the morphine this patient had more than thirty convulsions and I quit counting them. On three different occasions I had to use artificial respiration to restore her to life. I believe today that the only thing that saved my patient's life was the four ounces of sulphate of magnesium that I gave immediately after the first convulsion and later on half a grain and then a quarter of a grain of morphine.

**J. B. Stroud,** Louisville: As Dr. Lukins has said, eclampsia calls for immediate action, and in my opinion the first thing to do is what the gentlemen who preceded did, give one-half grain of morphine and deliver the baby immediately. I do not believe it wise to send the patient to hospital. She will probably have three or four convulsions on the way, each one increasing her danger.

The way I manage my cases is to call someone to give an anesthetic, the cervix being soft, pliable and easy to dilate I do so manually and deliver the baby, frequently in twenty to thirty minutes.

I have had thirty or forty cases of eclampsia, not having lost one so far and I shall continue to use plenty of morphine. When the nerves that are exploding and causing the convulsions are put at rest, the convulsion ceases.

Placenta previa is another condition in which I do not believe in sending the patient to the hospital. She will probably bleed to death on the way, as I have known several cases to do. The thing to do is exactly what you do in eclampsia, except do not give morphine, dilate the cervix rapidly and deliver the baby, which you can do in about twenty minutes, and save your patient. I have never lost a patient of that character.

Just a word or two about occipito posterior. If you have a left occipito posterior, use your left hand, pass it up and put two fingers over the left clavicle and give the baby a quarter of a turn and you have a normal position. If it is a right posterior, use your right hand, giving it a half turn and you have a left occipito anterior and the trouble is over.

**S. P. Oldham,** Owensboro: There seems to be a multiplicity of treatments for eclampsia this afternoon, which extends all the way from veratrum viride to Cesarean section in the contracted pelvis, which I think is all right but in eclampsia nothing has given better results or served me to a greater purpose than the giving of sodium amytal intravenously, especially if you have a hypertension or where the patient is in eclampsia when you see her. The giving of a half gram to a gram of sodium amytal will reduce the blood pressure and control the eclampsia immediately. If this is followed in four or five hours with three to six grains of sodium amytal per rectum, it will control the convulsive seizures and will not interfere with elimination.

You can continue to carry on your elimination by giving magnesium sulphate and other things, and at the same time if the patient is in labor it does not interfere with contractions.

I don't know whether I misunderstood Dr. Redmon in his statements as regard placenta previas. If you have a placenta previa centralis I think the only treatment then is by transfusion and Cesarean section, but if a placenta previa marginalis be the diagnosis, then the best treatment is induction of labor by a bag, after the expulsion of the bag, then either forceps or version would be in order.

For the prevention of morbidity in the mother, the most important thing is the preparation at the beginning of labor. Every measure, every aseptic remedy should be used in the preparation of the woman for delivery, as though she were undergoing a major surgical operation. If this be done and the field be thoroughly shaven, scrubbed and the vagina is swabbed out with a 5 per cent solution of mercurochrome or tincture of metaphen and if these aseptic measures are observed, as in a major surgical operation, the morbidity should be practically nil.

Again I want to mention sodium amytal in eclampsia as I don't think there is any preparation that would give you such gratifying results with as little danger as this drug. It will control your convulsions and at the same time will not interfere with elimination or the progress of labor.

**E. A. Steven,** Mayfield: I want to speak about the management of placenta previa centralis by the rapid method, delivering the baby by the vagina. This is not always easy to do without damage to the uterus and sometimes to the obstetrician. The cervix is sometimes friable because it has so many blood vessels which come to the placenta at its low implantation, consequently it may be easily torn which adds materially to the danger of postpartum hemorrhage and that is one of the dangers. Sometimes this is difficult for the doctor as it must be done in a hurry.

In our end of the state Dr. Jackson and Dr. Dunn undertook a hurried delivery when the mother was having convulsions. When the labor was completed Dr. Jackson, the mother and baby were all dead. When possible a hospital, a good surgeon, and a Caesarian section is by far the best route. After nearly fifty years experience there is no question in my mind that this is the best method of handling this problem.

**Henry M. Rubel,** Louisville: I just want to offer a little constructive criticism in regard to the formation of obstetrical programs. We had Dr. Lee Redmon down for pregnancy and its complications. In a modern textbook that would take up 200 to 250 pages. Then we had labor and its complications and the puerperium and its complications. I think hereafter we ought to have one definite subject, say, abruptio placcentae, the treatment of placenta previa, occipitoposterior cases, and if you want a whole day's work just put down eclampsia and you will get all kinds of expressions.

If we have specific subjects and not such an all inclusive type of program as we had today, we will get a lot more out of it.

**Lee C. Redmon,** (in closing): Since this has developed into a discussion on puerperal eclampsia, I think, I would like the privilege of saying a word. We have used in Lexington in the last five or six years the conservative treatment for eclampsia. Our mortality rate has been very much reduced with the mothers and the babies too. We do no accouchement force of any type at all, except as a last resort. I don't see any reason to put a woman in labor, if she is not already in labor, because she has eclampsia: we believe we can and do handle the condition in a conservative manner.

The subjects allotted to this symposium are so large that they cover practically the entire branch of obstetrics.

I want to apologize to Dr. Rutherford for stealing some of his thunder. After all, gentlemen, the whole thing comes down to the fact that a great many of these complications are preventable, and I would just like to emphasize what the other men have said; that when the mother does have the proper prenatal care we may get by with lots fewer complications.

Another doctor said he didn't understand me. I definitely said in the marginal type of placenta previa we do use the bag and after complete dilatation, with the parts properly prepared, we do a podalic version.

The whole thing, as I see it, in the treatment of ablatio placenta and placenta previa is to get your patient in some sort of condition to do something for her and then do it. In the treatment of placenta previa I think manual extraction and accouchement force contraindicated. Stay as far away from the placental site as possible and get your woman in shape so she will be able to stand some sort of surgical intervention.

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NEXT MEETING MURRAY

## COUNTY SOCIETY REPORTS

**Jefferson:** The following is the program for the May meetings of the Jefferson County Medical Society:

**May 1st—Case Reports**

Familial Xeroderma Pigmentosa, W. U. Rutledge, M. D. (Case from Dr. Willmott's Service at Children's Free Hospital.)

Postvaccinal Encephalitis, H. S. Andrews, M. D., Louisville City Hospital. (Guest Speaker.)

**Essay**

Physiotherapy as an Aid to Medicine, R. Hayes Davis, M. D.

Discussion to be opened by J. Rowan Morrison, M. D.

**May 15th—Case Reports**

Thyroglossal Duct Cyst, A. M. McKeithen, M. D.

Carcinoma of the Larynx, W. O. Johnson, M. D.

Discussion to be opened by A. L. Bass, M. D.

**Essay**

Etiological Incidence of Heart Disease in Kentucky, Drs. Emmet F. Horine and Morris Weiss.

Discussion to be opened by Drs. Arthur T. McCormack and C. W. Dowden.

CHARLES M. EDELEN, Secretary,
I. T. FUGATE, President.

**Greenup:** The Greenup County Medical Society met in the office of the health department on February 10, at 7:00 P. M. Members present were Drs. H. T. Morris, Johnson, Holbrook, Meadows, Huffman, Joyner, Gambill. The speaker was Dr. M. D. Garred, Ashland.

The following members were appointed censors: Dr. H. T. Morris, Dr. Meadows, and Dr. Franz.

Dr. M. D. Garred, Ashland, read an instructive and interesting paper on "Acute Intestinal Obstruction."

Doctors present discussed the paper thoroughly and presented many interesting cases.

CARL M. GAMBILL, Secretary.

**Grant:** The Grant County Medical Society met at the office of the health department in Williamstown, February 15, 1933 with the following members present: Dr. J. W. Albernathy, President in the chair, N. H. Ellis, C. D. O'Hara, C. M. Eckler and C. A. Eckler.

The minutes of the last meeting were read and approved and communications were called for, and a very pleasant communication from Mrs. Luther Bach, Second Vice President of the Woman's Auxiliary was read to the Society explaining the valuable assistance of the Woman's Auxiliary to the Medical Profession of Kentucky. A letter was ordered written to Mrs. Bach telling her of our action and the matter had already been taken up with the President-elect, Mrs. B. K. Menefee of Covington.

So few of our members were present that they postponed the topic for the evening and had round table reports, from the members present, of cases at the present time, occurring in their practice.

Some interesting cases of Suppression of Urine occurring in old men past eighty. For two days at a time without unpleasant symptoms occurring. One interesting case of Diabetic Gangrene was reported where a patient had lost two fingers, just dropped off from the Gangrene. This case had not been under the care of a physician. We talked at length on various topics until about ten o'clock and felt it was worth while to meet and exchange our views even with a small number present. Topic for next meeting, the same continued, "Some Views In Gynecology" from the Buffalo Post-Graduate School by Dr. C. A. Eckler.

We now adjourned to meet the third Wednesday in March at 7:30 p. m.

C. A. ECKLER, Secretary.

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**Franklin:** The Franklin County Medical Society held their regular monthly meeting Thursday, February 9th, in the Capital Hotel.

The meeting was called to order by the president, Dr. Jackson. Minutes of the last meeting were read and adopted. The following doctors were present: Darnell, Coblin, Patterson, Minish, Snyder, Travis, Jackson, Stewart, Leaser and Yomans.

Dr. Minish made a motion, seconded by Dr. Travis, that the Society invite Mr. Robert Dixon, Secretary of the Workmen's Compensation Board to talk to the Society at their April meeting, regarding the work of the Board with reference to the Physician. This adoption was unanimous by the Society.

Mr. J. G. Leaser read a paper giving a complete outline of his work as technician at the King's Daughters' Hospital, which was enjoyed by all persent.

The meeting adjourned to the Hotel Dining Room for lunch.

C. E. YOUMANS, Secretary.

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**Perry:** The Perry County Medical Society met at the Presbyterian Church, Hazard, December 12, 1932 at the regular monthly meeting. This is an annual affair to which the wives, daughters and friends of the doctors are invited. A delightful banquet was served to sixty by the ladies of the church and the following officers were elected for the ensuing year.

President, Taylor Hurst; 1st vice-president, C. D. Snyder; 2nd vice-president, J. C. Coldiron; 3rd vice-president, J. O. Salyers; secretary-treasurer, R. L. Collins; delegate, H. W. Gingles; alternate, J. M. Ray; censor, N. G. Riggins.

R. L. COLLINS, Secretary.

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**Greenup:** The Greenup County Medical Society held a dinner meeting on January 13, with the following members present: Drs. Holbrook, Joyner, Franz, W. S. Morris, Huffman, Gambill, H. T. Morris, Johnson, Vaughan and Marting.

Officers for 1933 were elected as follows: President, C. B. Johnson, Russell; vice-president, W .S. Morris, Fullerton; and Secretary-Treasurer, Carl M. Gambill, Greenup.

The question of active immunization, especially against scarlet fever and diphtheria, was brought up. It was informally agreed that local doctors would immunize any one who presented himself, regardless of his ability to pay. In the event the practicing physician should not wish to immunize certain indigent patients, he may refer such patients to the health department for such service.

There was much discussion of the question of the medical care of indigent persons in the county, but no formal action was taken.

Dr. Vaughan presented an unusual case of strongyloides lumbricoides occurring in his practice.

Regular meeting will be held on the second Friday of each month.

CARL M. GAMBILL, Secretary.

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**Taylor:** At the February meeting of our Society a general discussion of the report of the Committee on the Cost of Medical Care was a part of the program. Following this discussion the following resolution was passed by the Society.

Resolved: That this Society go on record as favoring a Symposium on the "Report of the Committee on the Cost of Medical Care" at the next meeting of the Kentucky State Medical Association. The said Symposium to be presented by: 1st A member of the Association engaged in full time health work; 2nd A member of the Association limiting his work to a special field of medicine; 3rd A member of the Association doing general practice in a locality of 2,000 or less population.

W. B. ATKINSON, Secretary.

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**Jefferson:** The 677th Stated meeting of the Jefferson County Medical Society was held in the City Hospital on Monday evening, February 20th, 1933, with 105 members and visitors present.

The meeting was called to order by the President, Dr. I. T. Fugate at 8:05 P. M.

Minutes of previous meeting were read and approved.

The Secretary presented the application of Dr. J. C. Hill, duly approved by the Judicial Council, and upon motion by Dr. Sherrill, seconded and carried, Dr. Hill was declared elected to membership in the Society.

Dr.McCarty addressed the Society on behalf of the King's Daughters' Home for Incurables, citing their need for laboratory equipment, particularly a microscope, a gift of which would be very much appreciated.

There being no further business before the Society, the Scientific Program was proceeded with as follows:

### Report of Cases

Bacillary Dysentery, by Dr. R. L. McCormack. Discussion by Drs. James W. Bruce, G. A. Hendon, and in closing by Dr. McCormack.

### Symposium on Leukemia

Blood Picture in Leukemia (Lantern Slides), Dr. Gordon S. Buttorff.

Etiology and Pathology of Leukemia, by Dr. W. H. Allen, with Lantern Slides.

Clinical Picture of Leukemia, by Dr. Herman Mahaffey.

Treatment of Leukemia, by Dr. Frederick G. Speidel.

Discussion opened by Drs. Virgil E. Simpson, and Jos. C. Bell, and continued by Drs. Armand E. Cohen, D. Y. Keith, Adolph O. Pfingst, and in closing by Drs. Buttorff, Allen, Mahaffey and Speidel.

The Society adjourned at 10:30 p .m.

C. M. EDELEN, M. D., Secretary.

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**Grant:** The Grant County Medical Society met at the office of the Health Department in Williamstown, January 18, 1933 with the following members present: Drs. J. J. Marshall, C. M. Eckler, N. H. Ellis, J. L. Price, E. M. Menefree, J. W. Abernathy, H. F. Mann, A. D. Blaine and C. A. Eckler, with J. W. Abernathy, president, in the chair. Minutes of the last meeting were read and approved. Communication from the American Medical Association was read and a motion was made and seconded that it be tabled indefinitely, motion carried.

Communication from Mrs. B. K. Menefee of Covington, in reference to organizing a Woman's Auxiliary was read and discussed and a motion made that the Secretary write her that we would take this up again as soon as good weather came, and write her then for her assistance.

At this time the dues for the State Society for the present year was called for, ana the following paid their dues: Drs. N. H. Ellis, C. M. Eckler, J. W. Abnernathy, J. J. Marshall, A. D. Blaine, J. L. Price, Harry F. Mann, L. C. Roberts, C. D. O'Hara and C. A. Eckler, total $50.00. This 1933 dues.

We now entered into the election of officers for the present year, and Dr. J. W. Abernathy was unanimously reelected. Dr. A. D. Blaine, vice-president and Dr. C. A. Eckler, secretary and treasurer. Dr. Harry F. Mann, delegate to the State Medical Association this year with Dr. A. D. Blaine, alternate. The society as a whole to act as a board of censors.

Some very interesting case reports were brought in at this time and some rare conditions.

The topic for the evening was now opened by Dr. J. J. Marshall who discussed in brief the nomenclature of this disease "Influenza." Showed how the severe type of 1918 differed from the mild type in this epidemic, with some few exceptions. He had had no severe hemorrhages in this epidemic, while in 1918 they were paramount. He had had otitis media and supra-orbital neuralgia in quite a few cases. He thinks this disease is spread by visiting during holiday seasons. People have houses too hot, makes them susceptible to the disease. He stresses the point in building up the health of children to resist the disease as we have it here every season. He warns you of the heart complications, and was very entertaining as well as instructive.

Dr. J. L. Price was next to talk on the type in 1888 as Gastro-Intestinal, Catarrhal and Nervous. He urged you not to depress the heart with coal-tar products, in this disease. He used morphine in this instead of other coal-tar analgesics. Brings out the point of sudden onset.

Dr. Harry F. Mann was next and thinks La Grippe as he sees it is as different as day and night. Dr. Mann showed a wide experience in the soldiers of the World War in differentiating the two cases. He stresses the point in Influenza in the treatment, rest in bed, Codeine for the pain, perfect elimination and Alkalinity. He uses Vaccines and derives great benefit from their use.

Dr. C. M. Eckler states with referrence to the types whether separated or not, are all influenza. He thinks morphine contraindicated. Uses salicylates for the pain and to prevent heart complications. Believes in Serums and cites the fact that the Telephone Company have their men vaccinated as a preventative against this disease. He says it raises the blood count and tones the system. He brought out a point that Influenza in itself does not kill many people..

Dr. A. D. Blaine was next and he doesn't see any difference- between La Grippe and Influenza. He has had a lot of sinus trouble in this epidemic. He uses coaltar preparations in selected cases. He does not force food upon them, waits until they get hungry. Never got any perfect results from serum.

Dr. J. W. Abernathy was next and cited numbers that come on at this time with a sudden onset with chills, high fever, delerium, headache and backache. These he calls influenza. He believes strongly in serums. Gives his severe cases serums every day.

Dr. N. H. Ellis is a strong believer in vaccines, takes a dose himself at the beginning of a cold, and it clears right up. He gives it to the school children free of charge, in his daily work.

Dr. Marshall now closed the discussion and we all felt that we had gained a great deal by exchanging views in regard to this dire malady.

Topic for next time, "Some New Thoughts In the Gastro Intestinal Tract In Gynecology and New Remedies Used in the Buffalo Post-Graduate School."

Discussion to be opened by Dr. C. A. Eckler.

C. A. ECKLER, Secretary.

**Franklin:** The January meeting of the Franklin County Medical Society was held Thursday noon, January 12, 1933 at the Capital Hotel with Dr. A. M. Jackson, president, presiding.

The minutes of the last meeting were read and approved. Members present at this meeting were Drs. Ginn, Travis, Martin, Minish, Jackson, Coleman, Stewart, Snyder and Youmans. Visitors were Drs. Frank Stites and Wallace Frank of Louisville.

Dr. Stites read a most interesting paper on "Mucin Treatment of Peptic Ulcer," relating several cases coming under his care that had made complete recovery under the treatment. Dr. Frank discussed the treatment from a surgical standpoint. Also other members of the Society joined in the discussion.

C. E. YOUMANS, Secretary.

**Bourbon:** The regular meeting of the Bourbon County Medical Society was held February 23rd, 1933 at the Bourbon County Court House. The following officers were elected for 1933:

C. G. Daugherty, President.

H. M. Boxley, Vice-President.

W. B. Hopkins, Secretary-Treasurer.

C. G. Daugherty, Delegate to State Convention.

J. A. Orr, Alternate Delegate.

A motion was made and carried that the dues of the society be reduced from $7.00 to $6.00 per annum.

A very complete and interesting paper on Jaundice was read by Dr. J. A. Stoeckinger, Lexington.

W. B. HOPKINS, Secretary.

**Central Tri-State:** The Central Tri-State Medical Society will meet in Huntington, W. Va., May 18.

Dr. Philip F. Barbour, President of Kentucky State Medical Association, "The Cost of Medical Care."

Discussion, Dr. D. A. MacGregor, President West Virginia State Medical Association; Dr. A. H. Hoge, Past President West Virginia State Medical Association.

Dr. C. M. Fitch, Portsmouth, Ohio, "The Effectiveness of Mercury as a Dieuretic."

Discussion, Dr. R. M. Wylie, Huntington W. Va.; Dr. G. H. Barksdale, Charleston, W. Va.

Dr. Wade H. St. Clair, Bluefield, W. Va., "Review of Gallbladder Surgery with Conclusions as to Surgical Procedure."

Discussion, Dr. J. Ross Hunter, Charleston, W. Va.; Dr. Ben O. Robinson, Parkersburg, W. Va.

Dr. W. A. MacMillan, Charleston, W. Va., "Intestinal Obstruction."

Discussion, Dr. G. H. Holzer, Gallipolis, Ohio; Dr. R. A. Salton, Williamson, W. Va.

Dr. W. S. Fulton, Wheeling, W. Va., "The Hundredth Case." A discussion of the occasional case which does not respond properly.

Discussion, Dr. G. R. Mickelwaite, Portsmouth, Ohio; Dr. R. J. Wilkinson, Huntington, W. Va.

This Association is composed of Ohio, West Virginia and Kentucky. All Kentucky physicians are given a cordial invitation to attend.

J. S. KLUMPP, Secretary.

## BOOK REVIEWS

THE SURGICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every month.) Volume 12, No. 6. Index Number. (Philadelphia Number December, 1932.) 280 pages with 110 illustrations. Per clinic year ( February, 1932 to December, 1932) Paper, $12.00; Cloth, $16.00 net. Philadelphia and London: W. B. Saunders Company, 1932.

Among the subjects discussed are Railroad Spine. Gastro-Intestinal Hemorrhage. Use of Nail In Bossini Operation. Infections in the Dangerous Circles of the Face—which is a very interesting and important subject. All the chapters are well illustrated and this volume will prove a valuable addition to the surgeon's library.

MINOR SURGERY—By Frederick Christopher, S. B., M. D., F. A. C. S., Assistant Professor of Surgery at the Northwestern University Medical School, Chicago; Attending Surgeon at the Evanston (Ill.) Hospital With Foreword by Allen B. Kanavel, M. D., F. A. C. S., Professor of Surgery, Northwestern University Medical School. Second Edition, Reset. Octavo of 998 pages with 687 illustrations. Philadelphia and London: W. B. Saunders Company, 1932. Cloth, $10.00 net.

The famous Frenchman, Marsonnet wisely said that it is the study of "La Petit Chirurgie" (Minor Surgery) that the surgeon commence his apprenticeship. This book presents in an adequate form the details of the diagnosis and treatment of truly minor surgery, it is not a compilation from previous texts, its source is the author's wide experience not only in this field but general surgery. This book should be in the library of every hospital for the help the intern will derive from the extensive chapter devoted to his special problems. Many sections have been largely rewritten and much new material added in this second edition.

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# KENTUCKY MEDICAL JOURNAL

BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

**Published Under the Auspices of the Council**

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## THE MURRAY MEETING

Arrangements for the annual meeting of the Association at Murray, September 11-14, are being completed rapidly and effectively. Dr. Keys, Chairman of the Committee on Arrangements, and the authorities of the Teachers' College have made an ideal arrangement for the comfort of those in attendance. The men's dormitory will house the single men and those who are not accompanied by their wives and families; the women's dormitory will take care of the married couples and the women who come without their husbands. All sessions will be held in the magnificent auditorium of the College. The Woman's Auxiliary will meet in the library. All of these buildings are within a stone's throw of one another. These are the most recently constructed college buildings of Kentucky and are comfortable and convenient. For those in attendance throughout the meeting, the charges will be two dollars ($2.00) per day per person, including meals in the College cafeteria.

Dr. Hendon and his associates on the Committee on Scientific Work have completed a most interesting program. We wish the profession of the State to know the enormous amount of work that has been done by Dr. Hendon; he has written more than five hundred physicians in the State, asking them to suggest topics in which they are interested, and has also asked them to suggest the essayist who can best handle these subjects. Practically every letter received prompt response. The program will represent the desires of many of the thoughtful practitioners of the State.

The Council has already distributed to the county societies a statement of the problems in regard to medical service in Kentucky. This will be discussed by the several societies so that the delegates may represent at the special meeting on Wednesday the mature thoughts of the profession of the State.

Murray may be reached by automobile by way of Bardstown, Elizabethtown, Bowling Green, Elkton, Hopkinsville, and Cadiz, or by way of Owensboro, Henderson, Paducah and Mayfield. The drive over either of these routes affords beautiful scenery all along. The members who go by car will have a delightful trip and vacation; those who prefer going by rail may get a sleeper from Louisville on the L. & N. to Paris, Tennessee, or over the I. C. to Paducah; from either of these towns they can reach Murray by rail or bus.

The House of Delegates will, as usual, meet on Monday afternoon; those of the members who prefer to stay at the hotel may make reservations by writing to Dr. Ben B. Keys at Murray. The hotel is a modern, well conducted hostelry.

On account of the important problems confronting the profession and the valuable postgraduate course provided in the Scientific Session, it is anticipated that this meeting will command its largest of any heretofore held outside of Louisvillle.

## AMERICAN MEDICAL ASSOCIATION

The American Medical Association and its Auxiliary will meet in Milwaukee this year from June 12 to 16. The attendance promises to be unusually large. The profession of Milwaukee is making elaborate arrangements for the entertainment of its visitors and the program is of special interest.

## MEDICAL SERVICE REFORESTATION CAMPS

From the Bulletin of the American Medical Association we take the following notice, which will be of interest to some of our members:

"The Surgeon General of the United States Army charged with the duty of organizing the necessary medical service for the members of the recently established civilian Conservation Corps, is asking for applications from qualified physicians who desire to participate in that service. Officers of the Medical Reserve Corps of the rank of Captain or Lieutenant and other physicians who wish to be identified with this movement, in forestry camps or Army posts, should make application to the Commanding General of the Corps area in which they reside.

Information available is to the effect that 538 conservation work camps will be immediately established in twelve western states and that nearly 110,000 men will be assigned to duty in those camps. In the Eastern section of the country about 10,000 men will be encamped.

Medical personnel will be assigned at the rate of one Captain and two Lieutenants of the Medical Reserve Corps for each thousand men. In those areas in which the camp units are widely separated contract surgeons will be assigned on a part time basis, at an average compensation of $125 per month. Two men in each unit will be trained in first aid and in sanitary inspection work.

Hospital service will be supplied for men in the camps in need of such service because of illness or disabilities contracted in line of duty during the period of encampment. Government hospitals will be used if located near the camps; otherwise the facilities of civilian hospitals will be utilized.

Medical service to be provided includes thorough physical examinations, vaccination against smallpox, typhoid, paratyphoid immunization, and outpatient and hospital treatment. It is expected that several hundred physicians in civil life will be brought into service, either as officers of the Medical Reserve Corps or in the capacity designated by army rules as contract surgeons.

It is understood that approximately 250,000 men will be enrolled for camp duty through the U. S. Department of Labor."

## IMPORTANT COUNCIL MEETING

In the July issue of the Journal, responding to requests from many County Societies, the Council has decided to publish the minutes of its proceedings at its recent meeting where the Report of the Committee on the Cost of Medical Care was discussed. We are sure the members in every part of the State will be interested in this discussion. It was the unanimous decision of the Council that the matter should be referred to the County Societies for study so that they might instruct their delegates to the State Meeting at Murray in September.

No other group has suffered more from the present financial depression than physicians; but we all realize that this is a temporary situation and we do not want state medicine put over on us during this emergency no matter how it is sugar-coated or disguised.

## ORIGINAL ARTICLES

## PELLAGRA*

J. F. Harrell, M. D.

Bardwell.

Pellagra is an endemic constitutional disease affecting the alimentary, nervous and cutaneous systems and in many cases terminating fatally.

The disease was first described by a Spanish physician by the name of Casal in 1735. The disease is common in Italy, Spain, Egypt, and much of Southern Europe, and has recently become so in the United States, especially within the past 20 years, 90% to be found among people of the Southern States. In these states Pellagra is one of the leading causes of death. In 1916 it ranked fourth in Mississipi, third in Alabama, and second in South Carolina. In that year probably an average one, so far as Pellagra is concerned, this disease caused 677 deaths in Alabama, 848 in Mississippi, 467 in North Carolina, 627 in South Carolina, 607 in Teneessee and 452 in Texas, or an aggregate of 3700 deaths from these six states alone, counting all types of cases it can readily be seen that not only is this disease among the most important as cause of death, but it probably ranks with the first in importance as a cause of prolonged sickness and lowered physical efficiency of the people in the area affected. In the six states named it is quite safe to assume that there were something like 70,000 cases of pellagra.

Symptoms—Prior to the onset the patient usually complains of lassitude, vertigo, pain in the epigastric region, loss of appetite occasional diarrhea and vomiting. These as a rule appear in the early spring and are soon followed by skin eruption. .

The eruption appears first on the back of the hands and exposed surfaces, namely, the hands, face and neck and at times on the feet, the hands are the most common site of the eruption, and is frequently marked by a distinct line of demarcation, which gives rise to the so-called pellagra glove, once in a great while this same condition exists on the feet and has been called the pellagra boot, also another line of demarcation is frequently noticed around the neck above the collar, and has been termed the pellagra collar. The erupted surface first gives the appearance of sun burn which gradually deepens to a brownish red and finally into a real brown pigmentation.

In the early stages of discoloration the skin is slightly tense, and often causes some pain such as burning and numbness, at times blebs or vesicals may appear, however the eruption usually disappears in a short while which leaves the skin pigmented, and roughened with occasional desquamation. As the disease progresses the skin becomes thin and smooth, due to atrophic changes, as a rule one of the peculiar characteristics of the eruption is its tendency to cover similar areas bilateral.

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*Read before the Carlisle County Medical Society.

The nervous symptoms consists of spinal tenderness, the reflex becomes more exaggerated, mental depression, hallucination and frequently insanity.

The gastro-intestinal symptoms may develop at most any stage of the disease which usually consists of a reddened tongue with prominence of the papillae, a burning sensation in the mouth, salivation, stomatitis, great thirst and diarrhea. The disease is apt to grow more severe during spring and fall time with an abatement of symptoms between seasons, but increasing each succeeding season. In the final stage when prostration, emaciation, stupor and delirium set in, a condition which resembles typhoid fever is present.

Etiology and Pathology—The cause of pellagra was for a long time thought to be caused by eating bread made from diseased corn or maize, but this theory has been proven to be wrong.

The disease was once thought by many physicians to be infectious, but we have learned now that this was not true. We know that it is brought on by not eating a properly balanced diet. It has been found in autopsies that the spinal cord was in a degenerated state and also Sclerosis of the brain had taken place. The age of patients with this disease is found to be mostly between 20 and 50.

Diagnosis—The most cardinal symptoms of pellagra are indicated by three d's, dermititis, diarrhea and depression, these symptoms together with the eruption, discoloration, mouth and stomach symptoms, one seldom has any difficulty in arriving at a proper diagnosis.

Prognosis—Mild cases with proper food surroudings usually recover, advanced cases most always terminate fatally.

Treatment—Good food and proper hygienic surroundings are the most important therapeutic measures, Pellagra is a disease caused by not eating a properly balanced diet of lean meats, vegetables and milk, a close study of the disease in the Southern States has proven that a proper balanced diet will cure and prevent pellagra, as has been expressed by one writer on pellagra, "if all persons provide themselves, and eat a well selected and properly varied diet, there would be no pellagra," just how an unbalanced or faulty diet acts so that pellagra is developed is not exactly understood by scientists. The important thing however is that the right kind of diet, will keep people from having the disease, and will cure those who have it if not too far advanced. Milk is the most important single food, fresh lean meat, fish, vegetables, beans, and dried brewer's yeast should be added to the diet. Soy beans is the most valuable of any bean variety, and should be ground into meal, and mixed with one-third flour or corn meal, which comes nearest to filling the place of lean meats. Soy beans are little used in this country but is extensively used in Euroe.

Some physicians claim that the administration of neoarsephenamine in addition to the diet is helpful but has not proven so in my experience.

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## RADICAL TREATMENT OF JOINT TUBERCULOSIS*

R. L. Woodard, M. D.

Louisville.

From personal observation and the thorough discussions which this subject has received in recent years I find myself entirely convinced of the wisdom of early operative fusion of the tuberculous joint.

We have all been dissatisfied with the conservative orthopedic treatment in these cases. No one can positively say that a tuberculous joint will not become active at any time until fusion has taken place either by surgical operation or spontaneously.

The problem of radical fusion of these joints is an economic one, aside from the patient's comfort and safety. Reports from many large institutions, where ideal conservative treatment has been carried on are very discouraging. I would say that something over ninety per cent of the patients who have been dismissed as cured will return in from two to fifteen years with an acute flare-up. External immobilization will relieve pain but as soon as it is temporarily removed the symptoms will return. It has been stated by a few medical men who prefer the non-operative treatment, that an operation is dangerous and that the infection in the joint is part of the general process. Of course, this is true but the infected joint is the most important factor in contributing to the general manifestations. I believe the sooner we get rid of the joint infection, by fusion, the sooner the patient will be relieved of other symptoms. The disease is permanently arrested in the joint only when firm fusion is accomplished.

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*Read before the Kentucky State Medical Association at Louisville, October 3-6, 1932.

An early diagnosis is extremely important. This is done either by a biopsy, or beginning positive x-ray findings, together with the history and characteristic clinical symptoms.

To most people the idea of a stiff hip or knee is a terrible thing. As a matter of fact patients, especially children, adapt themselves so thoroughly to it that they are much better off than if they had a few degrees of painful motion.

There are a number of operative procedures which are productive of good results. The so called extra-articular fusion has been replaced by more radical methods; i. e., all remaining articular surface is removed, together with necrotic tissue, more cancelous bone obtained either from the ilium or tibia, or both, packed around the well denuded joint. We find firm fusion following operations in six to nine months. This compares to twelve to fifteen years, or more, of conservative treatment, with only four or five per cent of them arrested.

I will mention some of the disadvantages and advantages of this operation.

### DISADVANTAGES

(1) Loss of joint function

(2) Usual dangers accompanying any surgical operation; however, not great.

(3) Failure of production of ankylosis, which depends upon the thoroughness of the operation, age of the patient and the joint involved.

(4) Infection following operation, (occurs in a small percentage of cases)

### ADVANTAGES

(1) Stops the progress of the disease sooner.

(2) Prevents many complications, such as general absorption of infection, abscess formation and deformities.

(3) Limb can be placed in the position of election, which is the most favorable for function.

(4) Minimizes pain and expense.

(5) Saves much time in bed.

(6) Possible earning ability of patient reached sooner.

(7) About seventy-five per cent of the cases permanently arrested.

L. D. Rogers. Age 7, when patient came to office October 17, 1927. Pott's disease, involving the 3rd, 4th and 5th, lumbar, also involving the sacrum. Operation January 26, 1928—Hibb's fusion. Dismissed from hospital, July 22, 1928. Conservatively treated for three months. Date of last picture September 30, 1932.

Rosa Elovitz. Age 6, when patient came to office, October 1923. Treated conservatively, by plaster spica and braces. Tubercular hip, right. Returned in December 1930; and on January 16, 1931, had a fusion of the right hip joint. Conservatively treated; 7 years and 3 months.

James Frank Sullivan. Age 6, when patient came to office in 1923; treated conservatively for TB left knee, with plaster casts and braces. Returned for treatment, October 1930, and there was evidence of activity, after disease had subsided for several years. October 18, 1930, fusion of the left knee joint. Conservatively treated 7 years.

Virginia Hubbell. Came to office July 1926, (about 13 years old). Old tuberculous left ankle; treated conservatively by plaster cast and brace. Returned October 1930 and there was still evidence of bone destruction at that time; Astragalectomy, October 3, 1930. Conservatively treated 3 years and 9 months.

## DISCUSSION

**I. A. Arnold:** Louisville: Dr. Woodard's paper is very interesting especially to those who come in contact with and do this kind of work. I agree with the essayist in regard to the early immobilization of the tubercular joints by fusion, as not only is the danger of mixed infection lessened, but much time is saved to the patient, which is important both to his well being and from an economic standpoint. Especially is this true of the weight-bearing joints such as the knee or hip. We can afford to spend more time in temporizing with other joints such as the elbow, where we are able to get a more complete immobilization by external fixation. If this can be accomplished, all is well and good; as a rule, even after an apparent cure, with a little trauma and motion of the joint, infection is likely to flare up.

It is important in resection or fusion of the joints that all vestige of joint surface such as cartilage or secreting tissue be removed, otherwise a small area of cartilage or tissue which may secrete joint fluid is apt to become cystic and produce a perfect culture medium.

The Doctor did not mention mixed infection. My procedure in mixed infection as the knee joint is to make a wide incision, cut the crucial ligaments, remove the patella, turn the flap back, prop the joint open and hold it in position by a double inclined splint. This is to remain in this position and be treated by Dakin's solution until the cartilage and joint surfaces have completely sloughed away and a healthy granulating area is left. Now with the resection of about one-half inch of femur and tibia, the limb is straightened until normal position is obtained; the leg having been in a flexed position some four to eight weeks, the hamstrings have contracted to such degree that no mechanical appliance is necessary other than the cast.

**Ellis Duncan,** Louisville: I have in mind one case in which I resected the knee joint for tuberculosis in 1909. I did the radical operation, removing all of the necrotic tissues in the joint along with the articular surfaces, mortising together the ends of the tibia and femur with the knee in full extension. He made an uneventful recovery and has been working as a farmer for the past twenty-three years without a flare-up. I certainly agree with Dr. Woodard upon the advisability of an early operation on tuberculous joints in adults.

**Orville Miller,** Louisville: I am quite interested in Dr. Woodard's paper. This is quite an important subject and one in which we are all interested. I am glad to have seen the patients which he has presented here and the results as shown speak for themselves.

It has been estimated in the average case that five years must be allowed to elapse during which time the patient is symptom-free, before the patient can be considered as having been cured of tuberculosis. Hibbs made the statement at one time that a tuberculous hip never heals if treated by the ordinary methods of external fixation, and so it has come to be believed by authorities that only fusion is a satisfactory method of treatment. I should like to emphasize also the point that the fusion should be done very early, before destruction has taken place, with consequent deformity and shortening of the extremity.

**R. L. Woodard,** (in closing): Dr. Arnold made the statement that he always cleared up mixed infections before he attempted a fusion. We have always found that if the patient's condition will permit of the operation, an early fusion, in spite of the infection, is advisable because if the infection is first cleared up and then a subsequent operation performed, the old infection will invariably flare up again. In other words, the sooner a joint is fused the sooner we get rid of all trouble.

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**Occipitoposterior Position.**—From the study of the records of 654 private cases admitted consecutively, McQueen concludes that in the management of occipitoposterior positions the following points should be taken into consideration: 1 Early diagnosis is necessary for proper management. 2. Successful labor often depends on the conservation of the patient's energies during the first stage. 3. The obstetrician should be constantly aware of the progress of labor. 4. Unnecessary operative intervention should at all times be deprecated. 5. When no disproportion exists, an occipitoposterior position will with average uterine contractions, in the majority of cases, rotate spontaneously to the front and be delivered naturally or with the aid of low forceps.

# CLINICAL INSTRUCTION IN DERMATOLOGY AND SYPHILOLOGY IN THE UNIVERSITY OF LOUISVILLE*

C. Brooks Willmott, M. D.

Louisville.

Since the ultimate aim of teaching medical students is to familiarize them with the common diseases with which they will come in daily contact, we have in the past and will continue to instruct along this line, putting special emphasis on the ten or twelve most frequent skin diseases, together with the admonition to be always on the lookout for obscure lesions of syphilis, which, in certain stages, may closely simulate many truly distinct entities of skin affectations.

For clinical exhibition for the most part we select only typical cases, since border-line ones only lead into confusion in diagnosis. Just here it might be instructive both to the student and the general practitioner to enumerate the most common of skin diseases.

Ringworm in its various forms, about forty, heads the list. Eczema or dermatitis, more often due to external irritants than constitutional causes, except in infants and early childhood. Scabies, most common in early childhood, though frequently affecting adults. Impetigo Contagiosa, in children common; adults less frequently, most often misdiagnosed as Barbers Itch and Herpes. Acne Vulgaris, usual appearance at puberty; other forms later on in life. Seborrheic Eczema, following dandruff, commonest in scalp and eyebrows, spreading to sternal and interscapular regions. Pediculosis, body, head, and pubic types of organisms. Pityriasis Rosea, probably of mycotic origin. Oval lesions, macular or papular, drying in center; Herald patch largest and oldest; sides of chest usual location. Psoriasis, silvery scales when picked off leave minute bleeding points. Early locations scalp, elbows, knees; later on may spread to any portion of the skin. Urticaria, toxic origin, usually due to eating certain foodstuff, such as cabbage, pork, sea foods, but may be due to external irritants, as sensitization to certain substances or drugs, administration of antitoxins and vaccines.

Erythema Multiformae, probably toxic in origin, usually presents a sudden appearance of papules, later vesicles and bullae on forearms, legs and face, due to anaphylaxis, drugs, auto-intoxication from intestinal tract, streptococcic infection, etc. Drug eruptions, toxemic in origin, sudden appearance of macules, papules, and vesicles may go on to distinctive ulceration, due to ingestion of acetanilid, antipyrine, antitoxin, arsenic, mercury, bromides, copaiba, quinine, veronal, and from external application of croton oil, iodine, sulphur, tar, turpentine, and chrysarobin. Dermatitis Venenata, an inflammatory and vesicular condition of the skin due to contact with or to action of caustics, chemical irritants, drugs, plants, etc. Lesions vary from an erythema to macules, papules, vesicles, and even ulcerative conditions when secondarily infected. Furunculosis, usually staphylococcic infection of hair follicles occurring commonly in debilitated persons with lowered resistance; in diabeties, lesions most often located in places where friction from posture or clothing causes denuding of the horny layer of the skin. Herpes Zoster, painful, vesicular eruption on an erythematous base occurring over superficial nerves anywhere, but most common over the intercostal, thoracic, lumbar and supra-orbital regions. Senile Keratosis, oval-shaped, yellowish, split-pea-sized patches with well defined edges, scaly and containing a few black points, rare before forty years of age. Usual locations, face and back of hands. Chancres, hard, nodular, indurated lesions, most frequently occurring on genitals or lips, with rapidly enlarging satellite glandular involvement. Cancer, epithelioma of basal cell type, most commonly on face; slow growth, slow metastasis; usually a superficial ulceration with an indurated and pearly border. May develop at site of constant irritation or in scars of former diseases. The prickle-celled type occurs most frequently on mucous membranes and extremities; rare on face; fairly early involvement of satellite glands—both types occur after forty years of age.

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*Read before the Kentucky State Medical Association, Louisville, October 4, 1932.

In making a diagnosis of any of these conditions, we first consider the lesion presented without asking the patient a single question.

With this tentative diagnosis, we then question the patient as to contagion, if thought necessary, duration of the disease, location of the first lesion, with their description as to vesicles, papules, erythema, etc. Itching diseases can be spotted by recent scratch marks, and this group numbers only about six. In other words, we try to disprove our tentative diagnosis by these proceedings. An inquiry for development of recent lesions, with their examination, if found, as primary lesions undisturbed by scratching or the application of strong or discoloring drugs may render the diagnosis much easier. For instance, the diagnosis of scabies becomes very probable if the lesions are characteristic, show recent scratching, with a history of itching worse at night or when the patient becomes over heated, with other members of the family similarly affected. The history of drug taking over a considerable period lends much value in establishing a diagnosis, as bromides, iodides, phenolphthaline, arsenic, copaiba, quinine, mercury, and even bismuth may cause skin and mucous membrane involvement from a comparatively simple erythema, accompanied by hives or urticaria, to angry looking, vesicular and papular lesions, sometimes ulcerating if infected with secondary organisms due to scratching.

In the main, history from patients, especially in our clinics, is misleading and lend little toward establishing the correct diagnosis, while from intelligent patients in private practice such history may prove invaluable.

Many cases of obscure and non-typical dermatitis may be elicited by inquiring into the occupation of the patient; tile workers, enamelers, chemical handlers, plasterers, dye workers, paperers and painters frequently become poisoned or sensitized to chemicals or drugs peculiar to their trade.

The establishing of an early history of tuberculosis of the lungs or bones often lead us to a diagnosis of a tuberculous diathesis, as Lupus Vulgaris, Erythema Induratum, etc. A history of the parents, especially that of the mother, as to number of miscarriages, early deaths of children, delayed lesions up to puberty or later, may often shed much light in cases of congenital lues. A history of failing vision just about the age of puberty should always arouse our suspicion, and perhaps an x-ray of the long bones should be made to ascertain lesions not palpable or visible even after a careful clinical examination.

Frequently it becomes necessary to have the patient remove all clothing, a loose garment or sheet being substituted during a general inspection of the entire skin surface. Contour of bony structures, posture, scarring, pigmentation, atrophy, or thinning of the skin may otherwise be overlooked. A good light is absolutely necessary for inspection, as fading secondaries, glistening-top papules, lichenification of eczema, mosaic arrangement of the lesions of lichen planus might easily escape ones attention, except in a well lighted room.

In the treatment of syphilis we attach much importance to vigorous and prolonged treatment with little rest during the first year, especially of the use of salvarsan, for a study of our records show that those cases having a negative blood reaction at the end of that time and remaining so under treatment for a period of another year, give a large percent of clinical cures. Spinal punctures are made on all so-called Wassermann-fast cases with the usual finding of involvement of the central nervous system, and appropriate treatment instituted when co-operation of the patient can be secured. A gradual tendency favoring the administration of tryparsamide along with malarial inoculations, rather than the intraspinus administration of salvarsanized serum, seems to be rapidly gaining ground.

We have recently instituted a much more thorough history-taking in all cases of syphilis, directing special attention to cardio-vascular conditions, presence of aneurism, conditions of the liver and kidney, as indications of pre-existing diseases of these organs might be a contra-indication of salvarsan or mercury. A most thorough clinical, neurological examination, particularly reflexes, presence of positive Rhomberg, Babinsky Argyll-Robertson pupil, etc. is most necessary. While we feel that soluble preparations of mercury and bismuth are most efficacious in controlling this disease, we are still compelled to use insoluble ones, for clinical patients will not appear for treatment every other day, or even three times a week, which is absolutely necessary to obtain the best results under this therapy.

Clinical cures occur in a large per cent of private cases appearing early for treatment. With proper co-operation of the patient, this percentage rapidly increases with the number of courses given. Recent writers insist on three or four courses of salvarsan, twelve to a course, followed by alternated courses of mercury and bismuth, fifteen to twenty in number. Such cases show a clinical cure of from 60 per cent to 70 per cent. This usually means that there has been slight if any involvement of the central nervous system. When such occurs, especially cases showing late clinical symptoms we can only hope to keep the infection under control during the remainder of life, for when actual scar formation exists, with the necessary result of faulty circulation, such tissues cannot be regenerated.

We have for a long time witnessed the remissions occurring in locomotor ataxia, with degeneration of the corresponding spinal nerves. Recently in meningo-vascular, and even in paretic types, under malarial inoculations and intra-venous administrations of Tryparsamide, such periods have appeared with added marked improvement in both physical and mental symptoms prognosis being much more favorable if such treatment is begun before appearance of mental symptoms. Some recent investigators hold much encouragement, and even claim cures in a few cases, but for the present, until many years have been added to their lives, with complete follow-ups in all cases, we cannot subscribe to such views.

## DISCUSSION

**Winston U. Rutledge, Louisville:** I am sure we have all enjoyed Dr. Willmott's very excellent review of the more common skin diseases with which general practitioners come in contact, and his outline of the most important points in the treatment of syphilis.

The importance of this specialty is coming to be more and more recognized, and in the medical schools throughout this country it is gradually coming to assume its rightful place as a major branch of medicine.

The only point that I wish to stress is that in order to acquire proper dermatologic training, abundant clinical material must be available, for there is no other way in which one may properly come to recognize the diseases of the skin. Descriptions, colored charts, pictures and even moulages may give students some theoretical knowledge of what they may expect, but to obtain the actual information necessary to diagnose skin conditions in their typical manifestations as well as the great number of variations which they may present, they must be seen in the flesh and blood, not only once, but many times, and without such clinical training one is apt to be often mistaken.

I am sure we have all been benefited by Dr. Willmott's interesting paper.

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**Hyperparathyroidism**—Bauer states that hyperparathyroidism or generalized osteitis fibrosa cystica is a clear-cut, distinct disease entity caused by an increased secretion of parathyroid hormone. The fact that it is disease of endocrine origin implies that the entire skelton is affected. Arthritis and Paget's disease are never generalized skeletal diseases. This fact alone argues against their being af parathyroid origin. Hyperparathyroidism is a disease characterized by definite alterations in the calcium and phosphorus metabolism, such as an elevated serum calcium, a decreased serum phosphorous, and an increased calcium and phosphorus excretion. Some of the characteristic symptoms and signs of hyperthyroidism are polydipsia, polyuria, weakness and loss of strength, constipation, loss of appetite, loss of weight, indefinite muscle and aches and pains, bone tenderness, frequent fractures, decreased excitability of the nerves, skeletal shortening, kyphosis, kidney or ureteral stones, generalized decalcification, bone tumors, multiple bone cysts, fish-type vertebral bodies, and frequently anemia with leukopenia. The author includes that until there is sufficient evidence to prove that Paget's disease and certain cases of arthritis are due to hyperparathyroidism, there is no justification in advisng parathyroidectomy in patient's with either disease.

# CLINICAL PROGRESS IN OBSTETRICS*

Edward Speidel, M. D., F. A. C. S.

Louisville.

The Obstetrical Staff of the University took care of 1589 obstetrical patients during the year July 1st, 1931 to July 1st, 1932. 506 cases in the homes and the balance in the City Hospital. We had a maternal mortality of 12 and an uncorrected fetal mortality of 141. Proper reductions on account of still births and non viability would reduce this to 73, which compares favorably with the results in similar institutions.

The staff of the University makes every effort to keep its service at the City Hospital up to date. In consequence weekly conferences are held, on Monday afternoons during the school session. At this meeting, attended by the entire staff, the two resident obstetricians and the internes, fetal and maternal mortalities are discussed and the conduct of the cases that led to such an outcome weighed and criticized from every angle and suggestions made if possible to provide for better results in similar cases later on.

A very recent development in the early diagnosis of pregnancy is the Ascheim Zondeck test. With this test pregnancy can be diagnosed within a week after missing the first menstrual period. This is at a time when even the earliest signs of pregnancy, the enlargements of the glands of Montgomery in the areola of the breast and the softening of the anterior wall of the uterus, are not as yet available. The Ascheim Zondeck reaction is due to the presence of anterior pituitary hormone in the urine of the pregnant woman and the test has been used successfully in the early diagnosis of pregnancy in a number of our cases. In one instance we arrived at the diagnosis of an hydatid cyst by a positive reaction of the test with other symptoms indicating this condition. It is well to remember that persistence of the urine reaction after removal of the hydatid is taken as an early indication of the formation of chorio-epithelioma.

The x-ray is used in the later diagnosis of pregnancy and in one instance, with pneumoperitoneum we diagnosed a left lateral pelvic mass as an unruptured extra uterine pregnancy.

Cephalo pelvic disproportion is diagnosed by abdominal palpation and pelvic mensuration and then confirmed by x-ray if necessary although too much reliance cannot be placed upon the latter unless special diagrams are used in making the picture. The diagnosis of twins and abnormal presentations, was readily confirmed by the x-ray. Little difficulty was had with the treatment of our cases of hyperemesis as they yielded to absolute isolation with large amounts of normal saline given under the breasts in the anterior axillary line with 500 to 1000 c. c. of 20% glucose intravenously daily and either luminal or Sodium bromide and chloral per rectum as a sedative.

The same may be said of pre-eclamptic toxemia which yielded in most instances to 20% intravenous glucose, elimination and a restricted diet, so that none of our cases went into eclampsia.

We had a rather strange experience in regard to eclampsia. 156 pre-eclamptic toxemias were treated in the hospital, all but 18 of these were sent in from the prenatal clinic. None of these cases developed eclampsia and all of them were later delivered of living babies. This surely is proof positive of the value of prenatal care as it makes it possible to detect a toxemia in the early stage.

We had three eclampsias with peculiar histories. One developed Scarlet Fever after entering the hospital and died of that condition. In another the eclampsia was accompanied by polyhydramnios, a third had only one slight convulsion. Two of the patients died although the one with Scarlet Fever could hardly be called an eclampsia death. As two of these patients were from the prenatal clinic, it also demonstrates that the condition is not entirely preventable.

A few changes were made in our conduct of normal deliveries. We discarded the mercurochrome external and vaginal preparations that had been used rather extensively the year before, partly because it was too expensive for a public hospital, but mostly because we could not see any advantage in its use.

We now prepare the patient for labor by shaving the external parts giving a soap suds enema and then painting the abdomen, the inner sides of the thighs and vulva with 33 1/3% iodine followed by alcohol. The students are taught to depend upon rectal examinations entirely to determine the progress of labor.

As a sedative we depend largely upon morphine hypodermically in the first stage of labor. In the second stage chloroform is given to the obstetrical degree until the head crowns the vulva, then when it is ready to emerge, it is pushed out under full anesthesia by pressing forward on the chin behind the rectum with the gloved fingers covered by a towel.

In some instances the second stage was conducted entirely under caudal anesthesia, so effectively used by our distinguished member from Owensboro, Doctor S. P. Oldham. We use 25 c. c. of 1 to 1000 sol, of Nupercaine with 1/3 c. c. of alcohol as the injection. When effective even mid and low forceps operations can be performed without further anesthesia and it would seem to us as one of the most practical ways of conducting painless labor in the home. Another method of delivery used quite frequently in connection with the obstetrical chloroform anesthesia was the infiltration of the perineum with 1% Novocain solution. No further anesthesia is then necessary at the perineal stage and when repairs are to be made after the delivery they can be readily performed without further anesthesia after the expulsion of the placenta. The patient is allowed to remain on the table for one hour after completion of the delivery to guard against post partem hemorrhage. Then she is carefully lifted upon the carriage and into her bed to avoid sudden death by embolism as can occasionally occur.

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*Read before the Kentucky State Medical Association at Louisville, October 3-6, 1932.

In the control of post partem hemorrhage we are recommending the Pomeroy maneuver of placing the left hand behind the fundus of the uterus, the right hand just over the symphysis pubis and pushing back and drawing the uterus up. This method with hypodermics of pituitrin and ergot should control most cases and obviate the rather dangerous procedure of uterine gauze packing to control the hemorrhage.

A number of changes have been made in the post partem routine. Castor oil as a purgative and routine applications to the breast have been discarded. The patient's bed is elevated into the Fowler position for the first five days, to favor drainage of the lochia. A teaspoonful of Fld. Ext. Ergot is given three times daily for three days to promote involution. One ounce of mineral oil is given twice daily with a soap suds enema on the morning of the third day. If sufficient elimination does not occur with the mineral oil thereafter, then Cascara or Milk of Magnesia is given in addition. The breasts are simply cleansed in the routine bath and supported by binders if congested. If fissures of the nipple occur, then the breasts are exposed to the air, the fissure touched with 5% solution Nitrate of Silver, twice daily and nursing interrupted for twenty-four hours.

Abdominal exercises are used from the fifth day on with the genupectoral position added after the seventh day. In a recent bombastic article in the Ladies Home Journal all cases of puerperal infection were ascribed to carelessness and lack of cleanliness on the part of the doctor. In this clinic the greatest number of infections show themselves in cases where either no manipulations were practiced at all, or under such sterile precautions, that the rise in temperature could in no instance be blamed upon the method of delivery.

In the treatment of the condition, we rely entirely upon keeping the patient in the Fowler position, to localize the infection in the pelvis. The patient is put upon the sun porch with an adundance of fresh air and a high caloric diet. Other measures consist of repeated small blood transfusions, generally 300 c. c., also glucose 20% intravenously with daily soap suds enemas. In cases showing pain in the region of the tubes, intramuscular injections of milk have been used successfully. One case was treated very successfully with streptococcus bacterio-phage. There was an intense reaction up to 110° but the temperature dropped to 95° in a short while and remained normal thereafter. One sparrow however does not make a summer and we are not ready with the result in one case, to recommend the procedure.

Better means of diagnosis are leading us to believe that ablatio placenta, the partial or complete separation of a normally implanted placenta is a more frequent occurrence than formerly supposed. In mild cases watchful waiting with perhaps the introduction of a dilating bag is the justifiable procedure. In the severe cases abdominal Cesarian followed by hysterectomy is the only safe procedure especially if uterine apoplexy co-exists, that is if the blood has infiltrated the muscle fibres resulting in muscular atony.

We are practicing abdominal Cesarian section in our primiparae with placenta previa regardless of the degree of encroachment of the placenta. The operation is preceded either by a prophylactic blood transfusion if a properly typed donor is at once available or the so recently developed valuable temporary expedient of the intravenous injection of 100 c. c. of 50% glucose solution until a proper donor can be secured.

In multipara we expect to succeed by vaginal delivery in most cases, resorting to simple rupture of the bag of water in marginal cases and to intra-ovular bag introduction in cases of partial placenta previa. It follows that a slow delivery must be practiced after the expulsion of the bag, to avoid serious post partem hemorrhage after placental expulsion due to tears of the especially friable cervix in this condition.

We have certainly been conservative in the use of Cesarian section as a means of delivery as we report only twenty sections in 1589 deliveries. There are two especial errors that are constantly made in the performance of Cesarian section, improper indication, and improper operation.

It should be distinctly understood that eclampsia is not an indication for Cesarian section. In fact the toxic condition of the patient makes it almost impossible to carry her through such an operation safely and in consequence there is a very grave mortality. It should only be practiced if a distinct indication such as moderately contracted pelvis exists in addition to the eclampsia. Twin pregnancies are not indications for Cesarian section even in moderate degrees of pelvic contraction as the babies separately rarely weigh more than five or six pounds and the available diameters must be exceedingly small not to allow the passage of such an undersize fetus.

We perform five different kinds of Cesarian operations according to the time when the operation is performed and the condition of the patient. In the elective cases we prefer the high operation, with the incision entirely above the umbilicus. In potentially infected cases, where the patient has been in labor quite a while, with ruptured bag of waters, vaginal examination and perhaps attempts at forceps delivery we practice the low cervical operation, either the double flap as described by DeLee or with the one inch intervening undenuded strip between the two flaps as modified by Beck or the Phaneuf modification with but the single transverse incision on the anterior surface of the uterus just one inch beyond the bladder reflection.

We precede and follow our Cesarians with the intravenous introduction of 100 c. c. of 50% glucose solution.

In frankly infected cases we perform celiohysterectomy, the Porro operation, unless there is a desire to preserve the uterus for future child bearing. In such instances the Portes-Gill operation should be performed. In this operation the pregnant uterus is lifted out of the abdomen, the abdominal incision permanently closed firmly down to the lower segment. The uterus is then incised to remove the fetus and placenta. This incision is sutured, pituitrin and ergot given and the retracted uterus about the size of a large grapefruit is dressed with gauze and adhesive straps and allowed to subinvolute on the outside of the abdomen. After three months the small adherent nodule remaining is dissected free from the lower end of the incision under local anesthesia, the uterus drops into the pelvis and the incision is permanently closed.

In secondary abdominal pregnancy, in consequence of the death of the fetus and the subsequent cessation of circulation in the placenta, we were able to remove the entire sac, placenta and ruptured portion of the tube in one mass. When the fetus in such cases is not dead or has just been dead for a short time, then it is too dangerous to attempt to remove the placenta, as a furious, uncontrollable hemorrhage will result. The procedure is such cases now is to remove the fetus, cuts the cord short to its insertion, trim off the membranes as much as possible and to close the abdomen, leaving, the placenta for peritoneal absorption.

If after six months, any of it remains and causes discomfort, then it can be safely removed by a secondary operation.

## DISCUSSION

**Henry M. Rubel**, Louisville: I do not think this paper should go by without some discussion, because it brings out the practice that we are now pursuing at the City Hospital. There are a few things I should like to stress. One is caudal block. We have the pioneer man in the state at this meeting, who preceded us in this work by many years. I think the greater part of the credit is due to Dr. Oldham for advocating this procedure. We use caudal block in our chest cases, of which we have many, and in our cardiac cases. We like to precede the caudal block with either sodium amytal or nembutal and then follow up with caudal block.

The second condition I would like to stress is the perineal infiltration as outlined by Dr. Speidel. That affords a lot of comfort; it does not hasten the rapidity of the operation; the operator may sit down and take his leisure and do a real, honest-to-goodness, primary repair.

The third factor I would like to call your attention to is the preparation of the patient. They finally took away mercurochrome from us on account of the fact that we were using entirely too much. Dr. Harris told us that in one month we used $300 worth of it, but I think they were using it on all services. They use it quite a bit up in surgery. Then again, some of the men thought it was no better than red paint, so you have to draw your own conclusions.

We have substituted recently a preparation called chlorothymol, which has been used at Dr. Polak's clinic in the Long Island Hospital Medical College. We use it in 0.2 per cent solution to which is added 10 per cent glycerine and 25 per cent alcohol. You bring that up to your designated quantity, whether a gallon or two gallons or three gallons. We use that as an intravaginal antiseptic, and we hope that when we get a sufficient number of cases we may report some very fine results. I had Dr. Weeter run off a number of bacteriological surveys for me, and it does seem to knock out any organism that we ever tried it against, whether it is streptococcus or staphylococcus or any other organism that it is tested on.

Another factor is the rather free use of blood transfusions that we are now resorting to. We do not wait until the patient is just about ready to slip off, but we use it as a primary therapeutic measure. Every case of bleeding that comes in, whether it is post-partum, ablatio placenta or placenta previa, is immediately typed and matched. By that I mean that the relative of the patient that comes in is typed with her and matched. If we are unable to get a proper donor, we have the police department and the fire department to fall back on, although sometimes the expense entailed is a little too murh. We try to get the relatives.

**S. P. Oldham,** Owensboro: I wish to express to Dr. Speidel and Dr. Rubel my appreciation for the compliment paid me this morning regarding caudal anesthesia. To my mind, caudal anesthesia is one of the most ideal anesthetics that can be used in obstetrics. One of the great advantages of this technic in that it can be used in the home as well as in the hospital and any Doctor who would care to take the time to work out the technic of caudal anesthesia would find it very simple and effective. Of course, caudal anesthesia is like all other anesthetics; not 100 per cent effective; we are told that in about 10 per cent of the human beings, the sacral canal is absent and of course, in this event anesthesia can not be obtained but in every case where the solution can be injected into the canal, and is thoroughly distributed, complete anesthesia of the pelvic floor, is obtained. The advantage of this anesthesia is that the patient remains, at all times, conscious. She can co-operate with you in the delivery at all stages and suffers no pain. The shock and dread of the terrific pains which may come with delivery, is dispelled. To recapitulate, it is to my mind, one of the most wonderful anesthetics that can be used in obstetrics. In the event caudal anesthesia is contra-indicated, for convenience, I use nitrous oxide gas and think it a very ideal anesthetic.

As regards the preparation of the patient for delivery, I was very glad to hear Dr. Speidel and Dr. Rubel emphasize the importance of the preparation of the patient for delivery. Many Doctors never attempt to prepare the patient for delivery. Doctors, especially in the rural districts, often times make no attempt to shave the field or render it aseptic, which to my mind, is just as necessary as doing a major surgical operation. My routine is to use tincture of metaphen or mercurochrome in the vagina at thirty minute intervals during the delivery. Whether this is due to the technic or to the metaphen or mercurochrome in the vagina, I can not say but I rarely ever get any morbidity following the obstetrical delivery.

**Edward Speidel,** (in closing): I always take every occasion to speak well of an obstetrician like Dr. Oldham who in one of the smaller towns has done some of the most remarkable obstetrics in this country by conducting home deliveries under caudal anesthesia.

I don't know whether he accepts the improvement that we have made upon his method by adding a half c. c. of alcohol to the anesthesia solution. It is supposed to penetrate the nerves more readily. If he has not tried that he will no doubt find that is true.

When it comes to a discussion of preparation of the patient for labor, either with mercurochome or with iodine or with any other paint, I always have to laugh because I still am a firm believer that the best preparation is plenty of soap and water. I have been a soap and water doctor all my life, and when I enter the inside of the uterus I scrub out the vagina with green soap and thoroughly irrigate with water, and I will do any kind of manipulation way up inside the uterus, and I have never had an infection. I think that takes the place of all these artificial coloring matters.

Perineal infiltration is a very comfortable thing to use, and I would advise all of you to try it. If you have a laceration of the perineum you have this advantage, that after the placenta is separated and expelled the repair can be done with deliberation without subjecting the patient to an anesthesia at a time when she is very prone to have a post-partum hemorrhage. That is the great advantage of perineal infiltration.

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**Chronic Nasal Sinusitis.** According to Hunt, if the growing spirit of pessimism in regard to their ability to cure chronic sinusitis is to be exercised, there must be a more general recognition by rhinologists that the real cause of both local catarrhal and remote organic and constitutional symptoms is the presence within certain of the paranasal cells of a germ-infested, fibrosed or polypoid mucosa; that medical treatment of the nasal cavity is purely symptomatic in character and it is absurd and immoral to raise false hopes of a cure by this means when the disease is well established; that nasal operations for the relief of obstructive breathing caused by chronic sinusitis are irrational, and, when associated with postoperative packing, dangerous. The indiscriminate attempt to cure all types of chronic antrum disease by nasal puncture and lavage is more illogical than to flush polyps from the nasal cavity or diseased tonsils from their bed. Success in radical sinus surgery will vary in direct proportion with the ability of the surgeon to locate the diseased cells and his thoroughness in removing all the infected mucosa of all affected cells.

# THE EARLY SYMPTOMS OF ACUTE POLIOMYELITIS*

Jno. J. Moren, M. D.

Louisville.

Acute poliomyelitis is a systemic infection. The virus has a predilection for the central nervous system. As a result of this infection we have general symptoms from the invasion of the virus, and in addition symptoms originating from the damage done to the nervous system.

The period of incubation is variously estimated from a few hours to two weeks. Leake believes that a period of two weeks is more probable than a shorter time.

The onset is rather abrupt, presenting symptoms that are commonly found in a variety of infections. Fever is possibly the most frequent symptom, and may vary from only a slight elevation, but usually in the neighborhood of 102-103.

The clinical onset vary somewhat with the epidemic. You will see sore throat and respiratory signs, again it will be gastro-intestinal disturbance, and in others it will have the appearance of an influenzal attack with pain, "summer flu," however, the majority will have fever, gastro-intestinal symptoms, with constipation more frequently than other general symptoms.

There are a few characteristics about the early stages of poliomyelitis. Considering the frequency in children it is rarely accompanied by convulsions. The temperature is out of proportion with the increase of pulse rate. The degree of prostration with profuse perspiration is entirely out of keeping with the temperature and pulse. These individuals are particularly fretful and restless, and do not want to be disturbed.

The clinical types have been divided according to the predominating symptoms which are due to the virus attacking certain portions of the central nervous system, namely: Spinal, bulbar, cerebral, meningeal and neuritic. Another type is the abortive, with only systemic symptoms, not resulting in paralysis.

Wickman gives the following abortive types:

1. Cases running the course of a general infection.
2. Cases in which signs of meningeal irritation were especially prominent (pseudomeningism)
3. Cases accompanied by distinct tenderness (pseudoinfluenzal)
4. Cases with disturbances of the gastro-intestinal tract.

He believed that abortive cases representing any or all of his four types made up a considerable proportion of all the cases in any epidemic of poliomyelitis, but that their exact ratio could not be determined.

The abortive type is accepted by many authors, but how this type is recognized from any mild systemic infection is the question. There is no symptom which is even suggestive unless it be a prevailing epidemic, or the presence of one case of poliomyelitis in the family.

Paul's (New Haven) investigation shows the clinical manifestation of a mild infection in families where one child had poliomyelitis, but had no symptoms to say that they were poliomyelitis. The clinical course ran along with that of poliomyelitis and their symptoms were the general run of symptoms of a mild systemic infection. However, he succeeded in transmitting poliomyelitis to the monkey from two cases. Whether these two cases were only carriers is a question.

Aycock found that in the blood of these "abortive cases" have no more protective bodies in their blood than those who had no symptoms at all.

There is no way of estimating the number of abortive cases, but it is assumed that they are more common than those developing paralysis. Some authors believe that many individuals have had their infection and do not contract the disease during epidemics because they are immune. This discussion does not aid in the recognition of early poliomyelitis, but does help to make the doctor "polio conscious," that he may watch the clinical course and meet the indications.

Different authors write about two periods or stages. Pre-paralytic and paralytic. In the light of modern therapy this is important in that serum treatment is of little or no avail after paralysis has appeared, consequently the students of this disease have centered their investigation upon the recognition of the pre-paralytic stage.

Draper has advocated a division into two phases. First, the general systemic invasion and second, invasion of the nervous system. He has four clinical groups or types. First, those presenting only systemic disturbance, so-called abortive cases. Second, those presenting the two well defined phases of the illness (Dromedary, two-humps). Third, those having no intervening period without symptoms. The first phase drags and fuses with the second. Fourth, the fulminating type, with sudden onset, with first phase. He states that a careful history of these cases frequently reveals the history of diarrhea or a cold, or some illness one or two days previous to the onset.

According to this division into two phases the following is the clinical course: The patient is taken sick with a gastro-intestinal disturbance and fever lasting about 24 to 36 hours. This clears up and no symptoms are noted for the following three or four days, then there is a recurrence of fever, gastro-intestinal symptoms, headache, irritability, drowsiness, backache, rigidity of the spine, etc., which is followed after thirty-six to forty-eight hours by paralysis.

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*Read before the Kentucky State Medical Association at Louisville. October 8-6, 1932.

The symptoms in the first phase are not even suggestive of poliomyelitis. They are treated as "summer colds," error of diet, sore throat, because the symptoms warrant such a diagnosis. We can only familiarize ourselves with the clinical course and should there be other cases of poliomyelitis in our community handle these cases accordingly.

On close investigation many of the cases held as poliomyelitis suspects were found to be only minor fever episodes from various causes, while in a number of supposed abortive cases, many cases showed a muscular weakness, not paralysis that placed them in the class of poliomyelitis.

As the virus invades the nervous system, we have a few signs which appear before paralysis—the pre-paralytic stage—which are reliable. These are general hyperesthesia, the patient does not want to be handled, heightened reflexes, pain, neck rigidity, the so-called "spinal sign," possibly Koenig, ataxic tremor and muscular twitching. These are irritative signs, consequently hyperesthesia and lively reflexes. These symptoms arise from the reaction to the virus, and the beginning of the inflammation, and disappear with the onset of paralysis. Neck rigidity is often present, but rarely do you find the stiff neck as seen in meningitis. The movements of the head are limited more than actually held rigid, as in the typical stiff neck.

A far more common and possibly typical of poliomyelitis, is the "spinal sign," etc. The "spinal sign," so designated by the American investigators, has been given quite a prominent position. This sign is best elicited by having the patient sit up in bed, and try to bend the back, putting the head down between his knees. This causes pain and distress in the back. It is due to the spinal meningeal involvement and irritation of the spinal nerves. This symptom is the same to the spine as the stiff neck in cerebral meningitis.

As the virus comes in contact with the nerve cells there is first a reaction that might be regarded as stimulation, consequently, the deep or tendon reflexes are heightened—lively to exaggeration.

The typical Koenig sign is occasionally obtained, but frequently a manifestation resembling the Koenig is brought about by the hyperesthesia or hamstring muscles.

A number of these cases suffer pain in the back and extremities. Frequently they are severe. When you consider the origin of this pain you can appreciate the type. Originating in the spine it is reflected along the course of the nerves and not definitely located in one particular spot. It takes the nature of a so-called group pain, deep seated, and hard to locate. These patients complain that "my back hurts" or "my leg hurts."

The ataxic tremor which is a coarse irregular tremor of the extremities, is noted in movement, and indicates a graver situation in the central nervous system, and is a forerunner of paralysis. Tremor and muscular twitching is thought by Draper to indicate nerve cell irritation by contact of the virus.

The cerebro-spinal fluid examination is quite important. In the first phase of infection there is no alteration, but as soon as the virus gains entrance to the cerebro-spinal system, changes are noted. In the beginning there is an increase in pressure, increase in cell count, which is of polynuclear type, and increase of protein. The color does not change very much, but the authors speak of a "ground glass" appearance in artificial light.

The cell count varies anywhere from a slight increase to many hundred. As the disease progresses the type of cell changes to a predominance of lymphocytes over the polynuclears. This is a characteristic found in poliomyelitis. These changes in the cerebrospinal fluid can occur very promptly, and are considered diagnostic or better confirmative signs of this particular infection.

Draper advocates a close watch for changes in the cerebro-spinal fluid. By lumbar puncture he has noted the change to occur in a few hours. Draper speaks of the "passage period." By this he means when the virus passes through the choroid plexus into the central nervous system. It is at this time that cerbro-spinal fluid changes occur and neurogical symptoms appear.

### DISCUSSION

**Curran Pope**, Louisville: Mr. Chairman and Gentlemen: I can only add a few words to this excellent presentation of Dr. Moren's. First with reference to the general infection. It is nearly always that of the upper air passages, and, as he has said has nothing distinctive.

Another point that may be noted is that in the area where muscular weakness and muscular twitching are present, we may reasonably look for and expect paralytic symptoms to follow.

I personally think that one of the conditions necessary to a very early diagnosis of this condition is the fact that the practitioner is alert and on the lookout for the possibility of the presence of an attack of poliomyelitis. Too oftentimes this trouble is overlooked in the early manifestations, especially by those in general practice. Of course, if there is an epidemic the mental attitude of the practitioner is prepared and he is much more likely to notice symptoms and to look for conditions pointing toward poliomyelitis.

The last remark that I wish to make is to accentuate the fact that in this disease, as in so many others, the early diagnosis of poliomyelitis means so much for the individual, for the child, because of the necessity for immediate institution of treatment.

I am one of those that believe that it is a great mistake to wait at all for the subsidence of the condition before we institute active treatment for poliomyelitis itself. I have held that position with quite a number of others for many, many years, especially the late Dr. Stearns of Indianapolis, and I have seen results obtained by treating the patient immediately while in the acute stage that could not have been otherwise obtained. Today we no longer take the viewpoint that nothing can be done, but that a great deal can be done and a great deal can be prevented, especially through physical therapy.

I think this paper of Dr. Moran's is timely and that it is useful, because I am somewhat inclined to believe we are going to have poliomyelitis with us most of the time.

**Philip F. Barbour**, Louisville: Dr. Draper some years ago coined the term "dromedary" type of symptoms, and the Doctor has very graphically presented it. That dromedary type of curve may be entirely distinct, as is indicated here, but very frequently the curves merge into each other.

Dr. Pope has brought out a point that I think we should keep in our minds, and that is that this disease, being a summer disease, in the summertime when a child presents unusual symptoms without any explanation we should think of poliomyelitis as the possible infection.

The point that the Doctor brought out about the spinal symptoms of the nucha of the neck is quite a good one. I think I have found that the neck is not nearly so stiff as it is in definite meningitis, and many times you can elicit pain in the neck if you rotate the head on the spinal column; you can bring the chin down on the chest bone with little effort, but if you rotate the head on the neck the child will complain of a great deal of pain. This has been a suspicious symptom for me.

As to the matter of giving the serum, it is not always possible to get serum immediately. We cannot keep it on hand. Here in the city, of course, we can get our supply of serum very promptly, and a very few hours make quite a considerable difference to your patient, but even if you have not the serum present you can give the blood of a healthy person to the child, because we have reason to believe that a great many people have anterior poliomyelitis without a paralytic condition developing. In other words, there are a great many people who have passed through this primary stage and have acquired an immunity to the disease that never do develop the paralysis. One reason for thinking this is the fact that anterior poliomyelitis attacks probably only one or two per cent of the people that are exposed to it. That probably means that the others are relatively immune. If children are having these little gastrointestinal upsets or upper respiratory upsets in the summertime and getting well of them, it may be that they have passed through the preliminary stage of poliomyelitis and have had sufficient immunity in them to prevent the passage of that poison through the choroid plexus and becoming a spinal infection.

I should advise, in these cases where you suspect the trouble, that you give your serum as promptly as possible. Every hour counts. Even with the development of the paralysis there is still some help to be obtained from the administration of the serum, because the paralysis that occurs is not always complete and instant. It is sometimes spread over some hours or perhaps a day or two; in other words, there is a progression of the paralysis after the first attack of paralysis occurs. We can prevent these later paralyses being engrafted upon or added to the original paralysis by serum.

I should like to say this word of hope. Of course when the toxin of this disease attacks the anterior horn of gray matter, many of these multipolar cells are completely destroyed, they are dead. As Morgan Vance said to me once, "these cells are dead and only God Almighty can restore them to life and he does not do it." But there are many of these cells which are functionally dead because of the pressure that surrounds them in the cord. After some days that pressure, that congestive condition, begins to be absorbed, or spinal puncture may have been done so that release of the pressure finally allows the cells to begin to function again.

We have this other final point, that paralysis does not always destroy all of the motor centers of a group of muscles. The paralysis may cut clean across the cord, it may produce a partial paralysis of a muscle. We are able by educative procedures, by resting the muscle during the acute attack, by exercise of the muscle after the attack has subsided, to get a good deal of functional return from the paralysis so that the patient is able to walk about, and perhaps with appliances will be able to use the limbs fairly well.

The course of progress toward recovery is something like two years, rather rapid at first, but even for two years there is still some possibility of restoring those cells which are damaged, but not completely dead. We should have a hopeful attitude toward our patients who have this trouble, encouraging them as long as is possible, and toward the end of the two years or even before that time they can use various orthopedic appliances, but after that time various surgical things can be done which will give the child perhaps the use of the limbs.

**Lee Palmer,** Louisville: I think this is one of the most important papers that we have had. At the present time, there are a few cases of infantile paralysis here in the city. During the fall and summer months, we may have it at any time in sporadic cases.

Dr. Moren has given us a thorough and very good paper. There is nothing I can add, but I do want to emphasize the importance of making a careful examination whenever we see a baby; though he is mildly sick with a cold, sore throat, or bronchitis, as these are frequently the early symptoms of poliomyelitis.

In five cases in the past two years, I have found the spinal sign of great help in making the diagnosis. We have a case at present that led us to make a spinal puncture because of a spinal sign on the third day of illness. This child was given serum.

There is one thing about treatment, and that is the administration of pooled blood. When it is impossible to get serum, if you administer blood from several people you stand a better chance to find a person who has probably had the infection than if you take the blood from one person only.

**John J. Moren,** (in closing): Dr. Pope made the statement that the prevailing signs were respiratory. That is going to vary according to the epidemic. In some of those epidemics the respiratory symptoms will prevail altogether, and again you will have gastrointestinal symptoms, so we must look for respiratory and gastrointestinal symptoms. I think that would be the safest procedure.

I forgot to mention one symptom that is quite characteristic and is an early sign, and that is hyperesthesia. These little children do not want to be handled, they do not want to be touched, they are sensitive, they are tender. That is another symptom that occurs in the pre-paralytic stage.

Another point in regard to the lumbar puncture. Some author reports an instance where a lumbar puncture was done and it was found negative, and in a few hours afterwards the lumbar puncture was repeated and they found the typical cerebrospinal fluid, so that change in the cerebrospinal fluid can occur in a very short time. That is one of the confirmatory signs of the invasion of the central nervous system.

# STUDIES ON THE CIRCULATION: ANALYSIS OF SOME PROBLEMS OF THE CIRCULATION IN MAN IN THE NORMAL AND IN PATHOLOGICAL STATES, BY THE USE OF THE INJECTION METHOD*

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The development of knowledge concerning the dynamics of the circulation in man has been greatly hampered in the past by the lack of an adequate and accurate method of calculating the output of the heart. Many methods have been devised, but because of the impractibility of doing direct heart punctures, these are of necessity, indirect, and as such, open to very serious criticism from the standpoint of accuracy and reliability. For about four years we have been working with a direct method which we have labelled the "Injection Method," because of the fact that it depends upon the injection of a dye. This method was first used four years ago, and in the intervening time we have developed it to its present state. We have checked and rechecked it with other methods in glass and water experiments and in dog experiments; we have devised and carried out experiments designed to show up any errors it may possess; and we have gone over its mathematical aspects with the professor of mathematics at the University of Louisville and with others. All of these tests have convinced us beyond a reasonable doubt, of the accuracy of the method. During this time, in addition to a large series of tests on animals, we have done about 180 tests on humans, and it is the purpose of this paper to present the data concerning the latter.

The method itself does not merit consideration in detail here. It has been described in other papers already published. Briefly, a dye is quickly injected into a vein and a series of blood samples are taken from an artery. These samples will show the dye appearing, rapidly increasing in concentration in each successive sample, reaching a peak and then decreasing in concentration according to a mathematical law down to a point where it once more increases, indicating recirculation of dye. Upon a special kind of graph paper this curve is plotted, the concentration of dye in each sample being plotted against the time relationship of each sample. By a relatively simple mathema-

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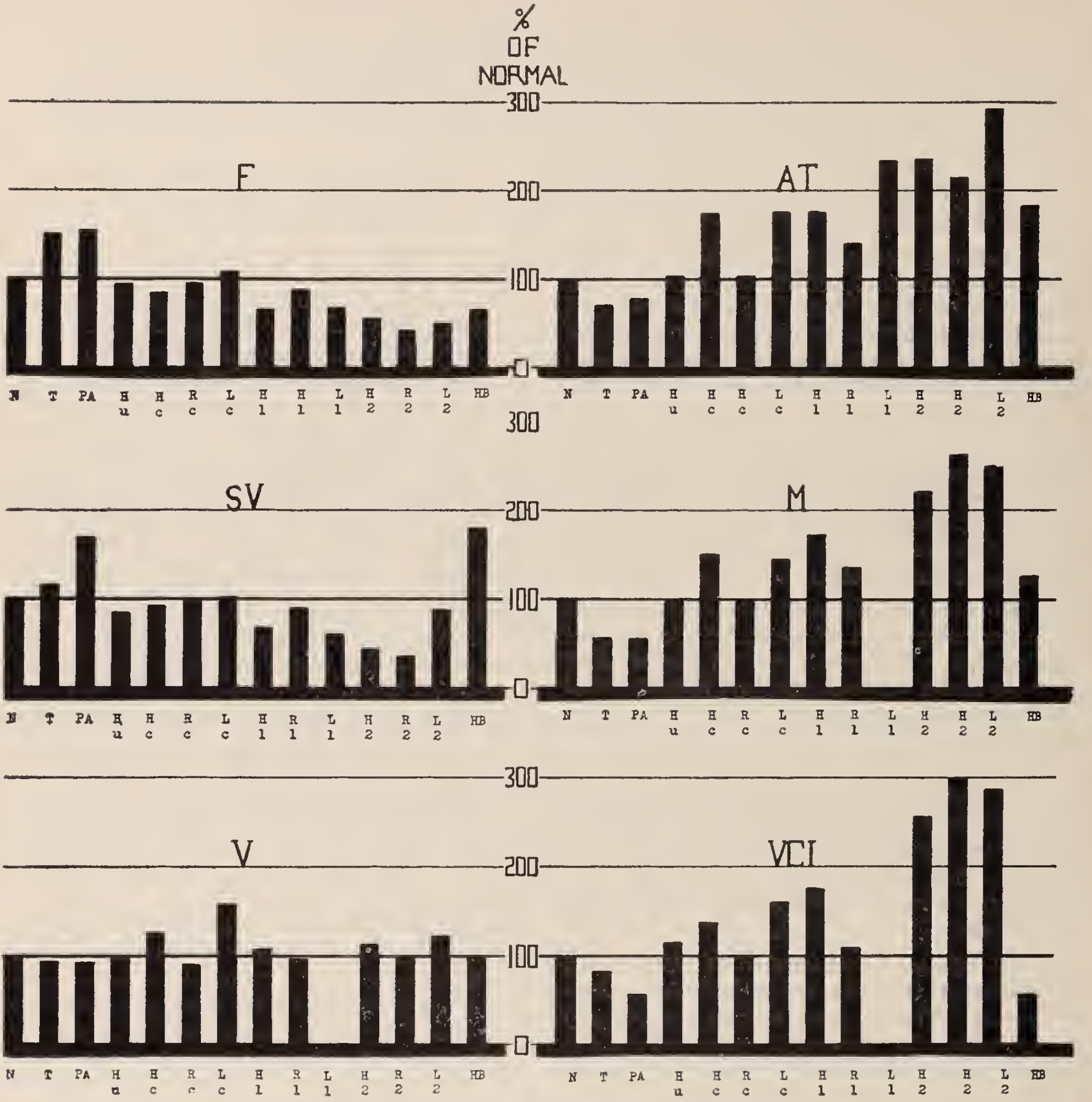

Comparison of various factors with the normal, in man with different conditions affecting the cardiovascular system. Each value is expressed in terms of percentage of normal (100%) after due correction has been made for surface area.

F, flow or output per minute. S V, stroke volume or output per beat. V, blood volume in the heart, lungs and great vessels of the chest. A T, appearance time (indicating velocity of blood flow; the greater the appearance time the more sluggish the blood flow and vice versa). M, mean circulation time indicating the average time it takes all the dye to pass the point of sampling. V C I, volume clearance index, representing simply the number of heart beats requiring to clear the heart, lungs and great vessels of blood.

The symbols under each series of blocks represent the following conditions:

N—normal cardiovascular system T—hyperthyroidism P A—pernicious anemia
H—hypertensive heart disease R—rheumatic heart disease L—leutic heart disease
U—undecompensated (cases which have never been decompensated)
C—compensated (cases which have been decompensated but which at time of test were compensated)
1—slightly decompensated
2—severely decompensated
H B—heart block

tical process the flow or cardiac output is then calculated from this curve.

By means of this method we can determine the the following facts concerning the circulation in any given case:

(1) (A.T.) THE VELOCITY OF BLOOD FLOW (Appearance Time). This is simply the time that elapses between the moment of injection of the dye and the moment of its appearance in the arterial samples, and thus indicates the time consumed by the fastest moving particles of blood (or dye) in passing from the point of injection in the vein to the right heart, through the right auricle and ventricle, through the lungs, through the left heart, and out the aorta and arteries to the point of sampling. This measurement is not a new one since it has been made in various ways for years, and quite recently Blumgart and Weiss have investigated this phase of the problem quite thoroughly by the use of a radium method.

(2) (T. C. T.) THE TOTAL CIRCULATION TIME. This, the time required for the fastest moving particles of blood to make a complete circulation from one point back to the same point, is easily measured by the difference in time between the appearance time and the point on the curve where it is evident the dye recirculates.

(3) (M) MEAN CIRCULATION TIME. This represents simply the average rate of blood flow, not simply the velocity of flow of the most rapid particles. This figure is arrived at by a more or less complicated method, but is based upon the curve.

(4). (F) FLOW, OR CARDIAC OUTPUT. This figure is, as mentioned above, obtained from the curve by a fairly simple procedure. It is usually expressed in liters per minute.

(5) (S. V.) STROKE VOLUME. This is simply the average output per beat—that is, the flow divided by the heart rate.

(6) (V) THE VOLUME OF ACTIVELY RECIRCULATING BLOOD IN THE HEART, LUNGS AND GREAT VESSELS. This figure is arrived at by a relationship between the flow and the mean circulation time. It does not take into consideration that portion of the blood which is stagnant and not actively circulating.

(7) (V. C. I.) VOLUME CLEARANCE INDEX This, a term devised by us, is the relationship between the volume of blood in the chest and the stroke volume, and indicates simply the number of heart beats required to clear the chest of actively circulating blood.

(8) (B. V.) BLOOD VOLUME. This measurement does not depend upon the curve, but is independent of it and somewhat of a side issue. This quantity has been determined repeatedly by many workers—notably by Roundtree.

In addition to these quantities, in the course of a routine examination of patients, we have been estimating the vital capacity and, recently, the venous pressure by means of the direct method (a manometer filled with saline and connected with a needle in the vein.)

CLASSIFICATION OF PATIENTS. We have employed our method on about 180 humans. Many of them were normal, the others had many different types of disease. Most of them were cardiacs. The cardiac cases are classified from two standpoints:

(1) ETIOLOGY. We have investigated three types chiefly, namely, rheumatic, hypertensive and luetic hearts.

(2) STATE OF COMPENSATION. All types of heart disease are classified according to whether they were compensated, mildly decompensated, or severely decompensated. In addition, the compensated group in the hypertensive division is sub-classified according to whether (a) they have never been decompensated, or (b) they have been decompensated but at the time of the experiment had regained compensation.

In addition to these cases there were four cases of complete heart block studied separately without respect to etiology; five cases of hyperthyroidism; and ten cases of pernicious anemia.

RESULTS. The results of our experiments are shown in the accompanying chart. In this chart the cases in the different groups are averaged and given in terms of per square meter of surface area. Corresponding to each figure is a figure representing its percentage of the normal as obtained from the normal cases and expressed as 100%.

The vital capacity and venous pressure show those changes already known and recognized. That is, the venous pressure rises and the vital capacity falls with increasing decompensation.

APPEARANCE TIME. A very striking feature of these experiments is the appearance time, indicating velocity of blood flow. In the cases of hyperthyroidism and pernicious anemia it is distinctly shortened, indicating a very rapid blood flow. In the compensated rheumatic hearts, and in those hypertensive hearts which have never been decompensated, the appearance time is within normal limits. In the hypertensive cases which have been decompensated but which have regained compensation, and in the compensated luetic cases, there is a very great delay in the appearance time. This delay becomes more marked as the degree of decompensation increases. The rheumatic cases follow the other types, although to a lesser degree.

MEAN CIRCULATION TIME. These figures

very closely parallel those for the appearance time so that the remarks made concerning the latter apply also to the former.

CARDIAC OUTPUT. (Flow). Here, too, the results are quite striking. The hyperthyroid and the pernicious anemia cases have an output 50% above normal. The compensated cardiacs have an output approximately normal excepting those hypertensives which have previously been decompensated but which are now compensated in whom the output is quite considerably reduced. In the decompensated cases the reduction in output is marked, being especially great in the more severely decompensated cases. Rather surprisingly, the cases of complete heart block have an output very much below normal.

STROKE VOLUME. This figure, bearing as it does a fairly close relationship to the flow, naturally tends to follow the latter excepting in two instances: (1) In the hyperthyroid cases the stroke volume is increased to a lesser degree than is the flow, as might be expected in view of the very rapid heart rate so common to these patients. (2) In the cases of complete heart block, whereas the flow is 34% below normal, yet the stroke volume is 179% above normal. This, too, is readily understandable when one bears in mind the fact that the average heart rate in these patients was only 28.

THE VOLUME OF BLOOD IN THE CHEST. This shows much less variation than one might expect. In no case is the volume increased to any marked degree. Its greatest increase occurs in the compensated luetic hearts, in the compensated hypertensive hearts which have been previously decompensated, and in the severely decompensated luetic hearts.

VOLUME CLEARANCE INDEX. This quantity, which appears to us to be one of the most important of all, representing as it does the number of heart beats required to clear the lungs of actively circulating blood, shows rather marked changes It is very low in the pernicious anemia cases, indicating that the lungs can be cleared of blood much more quickly in these cases than in the normals. On the other hand, it is very greatly increased in decompensation, and even in the compensated hearts excepting the rheumatic. It is very interesting that it is so low in the cases of heart block in spite of the slowness of the heart rate, but this is not difficult to understand when one considers the huge stroke volume in these cases.

COMMENT. The data presented here concerning vital capacity and venous pressure are not in any sense dependent upon the use of the Injection Method, as they are observations which can be made at any time and in nearly any place. The measurement of the velocity of blood flow, too, can and has been done by several methods. However, the other quantities which have been presented and discussed are directly dependent on this method for their determination. Of them all, we are more and more beginning to ascribe more significance to that quantity which we have termed the "Volume Clearance Index."

In many respects our results confirm the popular conceptions of the dynamics of the circulation in regard to blood flow. In spite of some recent work which tends to show that in dogs the cardiac output increases rather than decreases with the development of heart failure, yet clinically it is generally assumed that in humans, at least, the output decreases. Our work corroborates this belief. It also substantiates the idea that in pernicious anemia and in hyperthyroidism there is an increased output. One rather surprising feature is the tremendous slowing of the flow of blood in the presence of severe decompensation.

Before these figures were assembled, we considered it probable that we would find little difference between the different types of hearts so long as they were in the same state of compensation. It is therefore very surprising to note that although the hypertensive and luetic hearts, even when compensated, differ widely from the normal, and are very much alike in behavior in most respects, yet the rheumatic hearts, when compensated, give figures which are well within normal limits for all quantities.

Finally, it should be stated that we do not wish these figures to be considered as in any sense final or absolute, since in many cases the observations upon which they are based were insufficient in number to warrant drawing more than temporary conclusions. Further observations are being made continually by which our material is being constantly amplified. This paper presents only the trends which we are encountering.

## DISCUSSION

**John Walker Moore, Louisville:** The mysteries of this subject have gathered momentum in recent years. As the result of this, the literature is flooded with data so conflicting at times that quantitative evaluation is not permissible.

Suffice it to say at the present date that in the work in this field we find there is little unanimity of opinion either in the factors concerning the cardiodynamics or in the method used in determining these factors. Most of the methods heretofore used have been indirect methods, and as Dr. Kinsman has pointed out, they have serious drawbacks.

We have attempted to develop a direct method in this field, and it has the advantage of determining not only the output per minute, but the rate of flow of blood. Likewise, we are able to determine, we feel, the amount of blood in the heart and lung and the amount of blood in the body and the number of heartbeats required to clear the heart and lung of blood. We have studied a great number of heart diseases, but our data and number of cases are few. We have done something like one hundred and eighty determinations in the human, and about a hundred in dogs.

We have run onto quite a few stumbling blocks in the various types of heart disease. In our hypertensive cases with decompensation we have as a rule a patient with marked edema, numerous rales in the lungs, and marked dyspnea. We find in this group usually a marked lowering of the output. Instead of five or six liters per minute, as is encountered in the normal cases, we find in the majority of instances an output of two, two and a half liters per minute, with a marked lowering of the vital capacity.

In this same group there are a few cases with an output that is normal, say five or six liters per minute, velocity of blood flow and the number of beats required to clear the heart and lung of blood are also normal, even though the vital capacity is low. The significance of these findings is not clear to us at this time.

We feel, however, that in the group of hypertensive cases with decompensation we have an inner group that we have been unable to differentiate clinically. We feel sure that future investigation will unravel this little understood group.

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**Diagnosis of Drunkenness**—Goldhahn points out the desirability of an objective method of determining the state of drunkeness or sobriety in traffice accidents. The author recommends the adoption of Widmark's micro method of determination by means of which it is possible to estimate the exact amount of alcohol imbibed as well as its effect on the general state of the person. Accurate determination of the total amount of imbibed alcohol is possible within limits of error amounting to 10 per cent. A concentration of 2 per cent or higher is to be regarded as capable of producing decided alcoholic effect. Acetonemia is mentioned as a possible source of error. The blood alcohol, however, in this condition does not exceed a concentration of 0.3 per cent. The author suggests that with the leglization of the test both the driver and the injured be submitted to the test.

# SOME CAUSES OF BLINDNESS*

Claude T. Wolfe, M. D.

Louisville.

Regardless of our status in life whether members of the medical profession or the laity I am sure we look upon blindness as the most dreaded of the impairments of the special senses.

A time limit of ten minutes will permit of but a short resume of this subject, but even in that time much can be said with particular emphasis upon the diagnosis and prompt treatment.

Blindness coming on slowly and blindness sudden in character comes from a variety of causes. It will be utterly impossible to give justice to this subject in our allotted time and as a consequence only the commoner and more frequent causes will be considered.

A variety of causes are responsible for blindness, and these are local and constitutional. Of the latter diabetes, nephritis, leukaemia and pernicious anaemia may be accompanied by hemorrhages and exudates in the retina which often cause partial or complete blindness. Syphilis and tuberculosis often show local manifestations in the eye itself. In syphilis the iris is more often affected, although fundus evidence of this disease is seen frequently. In tuberculosis evidence is seen in many of the important structures of the eye. Of the two diseases my experience leads me to believe that the former is more often the cause of defective vision.

The nasal accessory sinuses must be given mention. Of this group infection in the sphenoid, on account of the close proximity to the optic nerve, often cause impairment in vision.

Then too, traumatisms, direct compressions of the eyeball and fractures of the orbit may cause acute blindness on account of the possible involvement of the optic nerve.

As a means of differentiating certain causes of blindness students of today are constantly impressed with the value of central and peripheral vision and in this discussion we will consider that you have a clear conception of the means of determining and charting defects in central vision and visual fields. For the benefit of some, however, we might suggest that in an easily performed field test you have the patient sit approximately two feet in front of you, with his back to the light. Have him cover his left eye and keep his right fixed on your left one. In this position move your fingers from the outside to the central midway between the patient and yourself. These movements should be carried in all directions. Should you note that the fingers are seen before the patient sees them you are certain that he has a limitation of the field in that region. These defects are of diagnostic importance in certain diseases.

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Since these remarks are especially directed to men doing general work we feel that they are of extreme importance in diagnosing certain diseases. To the ophthalmologists who may be present we are sure that no information regarding this essential is necessary.

Central vision is the amount of sight the patient has when looking directly at an object, and is most readily determined by using the test letters. In some diseases the vision is lost gradually, e. g., senile cataract and others the vision is lost suddenly or perhaps the symptoms may subside temporarily only to relapse into another stage of activity accompanied by pain, severe congestion of the eye and further and gradual loss of vision. These latter symptoms are characteristic of acute congestive glaucoma.

We will now consider the local diseases of the eye more often responsible for blindnesss. In this group glaucoma is one of the most frequent, most serious and perhaps most easily recognized causes of blindness, especially in the acute inflammatory stage, that we have to deal with. Its symptoms are so characteristic that they can hardly be confusing. No other disease has a constant increase in the intra-ocular tension or hardness of the eye ball. The pupil is also characteristic being dilated and ovoid and doesn't react to light. The cornea is steamy and often insensitive to the touch. The eye intensively reddened more especially at the cornea-scleral junction and above all the vision is markedly decreased. The pain is one of the most severe of all eye disorders. Another outstanding symptom of this disease of paramount importance and so often misleading that I feel it deserves particular emphasis, is the acute gastro-intestinal disturbance often accompanied by vomiting, which may so dominate the picture that the ocular cause may be neglected or totally ignored. Permanent blindness may result if your attention is focused upon the intestinal disturbance. True the patient in many instances may partially recover from the attack but he will most certainly have recurrences until ultimately the eye will not only be blind, but so painful that its removal is held likely.

With an eye presenting the above mentioned symptoms a diagnosis should not be difficult and unless you are doing special work and are remote from an ophthalmologist it is certainly advisable to transfer your patient as soon as you can after administering the following emergency measures:

Give the patient a hypodermic of morphine, not including atropin, as atropin is especially contra-indicated in the treatment of glaucoma—Escrin Solution instillations into the eye, hot compresses may be applied locally and arrangements made for an early operation.

In contrast to the acute fulminating type, glaucoma may present symptoms devoid of inflammation that come on so insiduously and so different from the type just mentioned, that its presence might be overlooked. In this the non-inflammatory type the chief symptom is a gradual reduction in vision which may occasion a frequent change in glasses especially if the patient should fall into the hands of the incompetent or the spectacle vendor. If only a diagnosis had been made early in many cases the inevitable would possibly have been prevented.

In addition to the gradual reduction of vision and the increase of the intra-ocular tension, the visual field is greatly reduced as well as central vision. In examining the eye ground with the ophthalmoscope the optic disc will show cupping extending entirely to its periphery. The essentials of ophthalmoscopy are now stressed before senior medical students and with few exceptions all are able to read the fundus findings of an eye intelligently. It is not obligatory for all students to have ophthalmoscopes, but nearly all have them and deeply appreciate the value and importance of the information both from a diagnostic and prognostic standpoint that this instrument affords.

As an illustration of the value of the ophthalmoscope embolism or thrombosis may cause a sudden closure of the central artery of the retina and either may be responsible for rapid occlusion of the central vein. In either case we are doubtlessly dealing with a vascular disease and both may cause rapid failure of vision and can only be diagnosed by the aid of the ophthalmoscope.

Arterio sclerosis occasionally causes sudden blindness, particularly central in type, and is usually due to senile degeneration of the macula. While little can be done to alleviate this particular symptom, in many instances early manifestations of cardiac vascular changes are manifested in the fundus of the eye that are of extreme diagnostic and prognostic importance.

The loss of sight following corneal ulcers in smallpox, herpes ophthalmicus and gonorrheal infections, as well as those caused by other virilent organisms, can in many instances be controlled if seen early and the proper treatment carried out vigorously.

Detachment of the retina may cause partial or sudden blindness. It is often spontaneous and may be caused by a tumor. Of the tumors sarcoma of the choroid is the frequent one. Here again the ophthalmoscopic picture may be the deciding factor in the removal of the eye to prevent a metastatic process.

We might continue to enumerate many other conditions that are responsible for blindness or at least a marked defect in vision, eg., wood alcohol, quinine, lead tobacco, etc. but time will not permit.

Suffice it to say that the eye in many instances presents local symptoms of a general disease and we must not lose sight of the fact that a careful physical examination is always indicated and may help us arrive at conclusions necessary for the proper treatment of the underlying etiological factor.

In our experience an intelligent diagnosis is of the greatest importance. Without this how are we to know whether the disease is local or general in origin and the line of treatment to follow.

It is our opinion that much blindness can be prevented and even cured by a united effort on the part of all of us

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**Parathyroids in Diseases with Demineralization of Skeleton.**—According to Compere, generalized osteitis fibrosa may be differentiated from other skeletal dystrophies that are clinically similar. This condition is characterized by a high serum calcium content, low plasma phosphates, increased excretion of calcium in the urine, and negative calcium balance; an adenomatous tumor of one or more parathyroids has always been found at postmortem examination and nearly always at operation, while the remaining glands are normal in size and structure. There is no good evidence that Paget's disease is caused by hyperparathyroidism. In this condition the calcium and inorganic phosphate contents of the blood are normal; and the parathyroids are usually found to be entirely normal in size and in microscopic structure. Ankylosing polyarthritis is probably not caused by hyperparathyroidism, because although the serum calcium may be slightly above normal, the inorganic phosphates of the plasma are normal; the calcium balance is positive; the parathyroids have been reported enlarged, but usually this enlargement was symmetrical, involving all the parathyroids similar to that reported in cases of rickets or low calcium osteomalacia. In experimental animals the addition of vitamin D and of adequate calcium and phosphorus to the diet has resulted in a decrease in the size of the enlarged parathyroids as well as healing of the skeletal disease. Parathyroidectomy in cases of ankylosing polyarthritis or of Paget's disease is not a justifiable procedure. Demineralization of the skeleton in polyarthritis may be accounted for as atrophy of disuse.

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# THE ANO-RECTAL ABSCESS*

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Louisville.

Because of the relatively large number of patients suffering from ano-rectal fistula, and because of the fact that in practically all cases of ano-rectal fistula the abscess has been the original condition and direct cause of the fistula, I have chosen this subject for discussion this afternoon.

Unfortunately not only the average patient, but oftentimes also the doctor first consulted, does not seem to realize the significance of an abscess in this region. Because of the function of the rectum and the anatomy of the parts an abscess here is distinctly different from an abscess in most other regions of the body. Only the very superficial, or subtegumentary abscesses, tend to heal promptly, the others—and they constitute the great majority—are prone to result in fistula formation, more or less complicated in character.

A fistula in this region may be defined simply as a contracted but unhealed abscess cavity, plus chronicity.

Because of the varying resistance offered the accumulating pus during the abscess formation by muscle and connective tissue, planes of fascia, etc., it is readily seen that the abscess wall assumes an irregular shape, with offshoots in various directions, the pus under pressure, making for itself room in the direction of least resistance, until finally rupture takes place, or the abscess is opened. Then after discharging pus for a time, the duration depending upon the character of the opening and the virulence of the infection, the abscess wall with its offshoots, or diverticuli, gradually contracts, the wall thickening as the contraction takes place, the abscess proper finally constituting the fistula; the offshoots, the branches of the fistula. Thus it will be seen an ano-rectal fistula does not consist simply of a straight sinus, readily emptying its pus upon the skin or mucous surface, but rather of a tortuous channel with branches, the extremities of which often being quite remote from the main sinus; and it must be admitted that pus, even though in small quantity, thus confined in the tissues constitutes focal infection just as truly as pus similarly confined in other regions of the body. For this reason alone, even if there were no others, it becomes quite apparent that patients suffering from ano-rectal fistula, should be given the proper surgical treatment without delay. Furthermore, fistulous tracts as they become more and more chronic, have a tendency partially or completely to close at their outer extremities, thus permitting accumulation of pus with consequent re-formation of abscess cavities, further burrowing and destruction of tissue, finally resulting in partial or total loss of sphincteric control.

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It appears, then, that ano-rectal fistula may not be regarded as of minor significance, requiring eradication only when causing severe subjective symptoms.

With this admitted it readily follows that, if the ano-rectal fistula can be prevented by the proper handling of the ano-rectal abscess, such a procedure would be most desirable. That this can be done in most, if not in all, instances has been abundantly demonstrated. But it can be accomplished only by strict adherence to certain well defined principles:

First—the opening of the abscess must not be too long delayed.

Second—the manner of incision must be such that the abscess once opened will remain open, thus permitting proper drainage, proper cleansing of the wound, and progressive healing from the bottom.

Abscesses of the ano-rectal region may be conveniently classified according to their location, each requiring treatment, as will be presently seen, somewhat different from the others. Obviously the deeper abscesses, those originating in the pelvi-rectal space—above the levator muscle are far more serious than those of more superficial origin. Fortunately, by far the greater number originate below the levator muscle, i. e. in the ischio-rectal fossa, subcutaneously, under the mucous membrane, or in the blood wall itself.

Abscesses are caused by the introduction of pyogenic organisms into the tissues involved. This occurs through the skin of the peri-anal region, through the bowel wall due to a lesion of some kind within the rectum, or through the lymph or blood stream. The organisms commonly involved are the straphylococcus aureus and albus; the streptococcus; the colon bacillus and the tubercle bacillus.

A common error, unaccountably widespread, is that practically all abscesses and fistulae of the ano-rectal region are of tuberculous origin. This has been proven not to be the case by a number of observers. More than two decades ago Quenu and Hartman of Paris, after a long series of investigations, published as their conclusions that fewer than fifty per cent of all ano-rectal abscesses contained tubercle bacilli. They found that in twelve representative cases only in five were tubercle bacilli present at all; and in only two of these five cases were the tubercle bacilli solely responsible for the suppuration; in the other three they were mixed with either staphylococci, streptococci, or colon bacilli. In the other seven cases of the series of twelve, the colon bacillus was found solely responsible in two cases and in the remaining cases a mixed infection of colon bacilli, staphylococci or streptococci were responsible.

It is interesting to note that the same number of abscesses were found to be caused solely by the colon bacillus as were caused solely by the tubercle bacillus.

The symptoms of rectal abscess are much like those in other parts of the body except that the pain is sharper and more intense because of the very rich nerve supply to the lower rectum and peri-rectal structures. Objectively, is presented as in abscesses elsewhere, redness, swelling, induration, finally fluctuation, and of course elevation of temperature.

It is a very simple matter to open an abscess and evacuate the pus, but, as already suggested, unless this is properly done, a fistula will very likely follow.

Do not wait too long before opening the abscess. While it is unusually desirable to wait until fluctuation is present, it is essential to keep in mind that the abscess may be developing in the deeper structures or above the levator muscle and that if not promptly incised, much burrowing and destruction of tissue may take place before fluctuation on the surface can be detected. As a rule it is not advisable to temporize longer than 48 hours after pain and induration has become marked and shows no signs of receding.

Never consider a simple puncture wound nor even a linear incision as a proper opening of a rectal abscess. While the pus may be evacuated and the pain relieved in this way a fistula will certainly follow, because as soon as the abscess wall collapses following the emptying of the pus, the edges of the incision fall together, soon adhere, and the infected lining of the cavity being thus enclosed does not heal, more pus is produced, an opening finally is forced, and a fistula exists. All this can easily be prevented by employing the crucial or T-shaped incision. As can readily be seen when this form of incision is used, the opening does not close with the emptying of the pus and the collapse of the abscess wall, but on the contrary stands wide open, thus making easy the proper cleansing of the wound (which in our practice is usually accomplished by means of a 1 or 2 per cent Hyperchlorite spray) and facilitates healing of the wound from the bottom. When the abscess is near the anus an incision is made antero-posteriorly extending to the full depth of the abscess and entirely across from one side to the other; this incision being far enough from the anal verge to avoid wounding the sphincter muscle. A second incision is then made transversely beginning at the middle of the first incision and cutting outward as far as the abscess wall extends. Then the projecting angles of the wound are trimmed off and all pus and necrotic tissue removed.

A complete crucial incision is even more advantageous than the T-incision when the abscess is far enough from the anal orifice to permit its use without cutting the sphincter.

The principal varieties of abscesses encountered in this region are: (1) The subcutaneous; (2) The submucous; (3) The ischio-rectal; (4) The pelvis rectal; and (5) The retro-rectal. In addition to these may be mentioned the perineal, the labial, the prostatic, etc.

The subcutaneous abscess, as its name implies is just under the skin and is usually small in size. Under novocaine infiltration anesthesia it can be readily opened, the crucial incision being used. When the subcutaneous abscess occurs near the anal margin the T-shaped incision is used instead.

The submucous, or intramural abscess, as it is sometimes called, is found within the bowel wall itself lying between the mucous membrane and the circular muscular fibers of the bowel wall. Care must be taken not to mistake this for a pelvi-rectal abscess. The opening is accomplished by a small T-shaped incision at the most dependable part of the abscess, i. e. just inside the anal verge. Care must be taken that the opening does not close before the abscess cavity has entirely healed, for if it does a sub-mucous fistula involving the anal canal will result, and this is one of the most common causes of pruritus ani.

The ischio-rectal abscess, more common perhaps, than either of the other varieties, develops rapidly when the infection takes place in the ischio-rectal fossa, normally containing fatty tissue offering but little resistance to pyogenic organisms. If not opened the abscess will break upon the surface of the buttocks or perhaps, more frequently, into the rectum just above the anal sphincter; again it may burrow posteriorly around the rectum, finding its way into the fossa of the opposite side. Fistulous tracts, thus resulting, require careful dissection for their successful removal, not infrequently including special attention for the strengthening or restoration of an impaired anal sphincter.

The ischio-rectal abscess is best opened under general anesthesia, gas-oxygen usually sufficing, a crucial or T-shaped incision being employed. The wound should be carefully packed, usually necessary to control hemorrhage, the packing being allowed to remain 48 to 72 hours.

The pelvi-rectal abscess originates above the levator ani muscle in the superior pelvi-rectal space, which is triangular in shape, apex downward, bounded by bowel wall on one side, levator on the other, and peritoneum above. Diagnosis of this form of abscess is often delayed due to the indefinite symptoms, frequently at first manifesting themselves more as pain in the pelvis and in the lumbar and sacral regions and perhaps down the thighs. Digital examination of the rectum, which should always be made when symptoms about the pelvis are vague or indefinite, quickly clears up the diagnosis. The pus in a pelvi-rectal abscess often burrows through the levator muscle and invades the ischio-rectal fossa. The opening of the abscess, even though bulging far into the bowel and apparently ready to break, should always be made from the outside, the incision T-shaped, passing through the ischio-rectal fossa and into the pelvi-rectal space, care being taken to incise the levator sufficiently to insure free drainage until the cavity above the levator has had time to heal.

The retro-rectal abscess occurs posteriorly to the rectum and between it and the sacrum. It may be caused by disease of the sacrum or coccyx, but more often is traceable to perforating wounds of the bowel wall and resulting infection, caused by foreign bodies in the rectum or by accidental injury. In opening this abscess the incision should be made along the side of the coccyx, care being taken to avoid injuring the anal sphincter or its attachment to the tip of the coccyx. The incision must penetrate the levator and a drainage tube should be inserted.

The post-operative care of rectal abscesses is important. The dressing should be changed often enough that the wounds may be kept clean. Usually irrigation is not necessary but an antiseptic spray is advantageous. The hot sitz bath is very useful, but when not available hot compresses several times daily may be used instead. Exuberant granulations when they appear should be removed by applying sulphate of copper, silver nitrate, or through the use of the curette.

## DISCUSSION

**M. H. Pulskamp, Louisville:** There are just a few points concerning ano-rectal abscesses that I wish to emphasize.

First, an abscess in this region especially, should be opened early: that is, as soon as the diagnosis is made and time should not be wasted in poulticing or hoping that the abscess will burst and heal spontaneously.

Second, as to the method of incision: we think that in opening an ischio-rectal or pelvi-rectal abscess a T or a crucial incision should be used for it is of paramount importance that all the pockets be broken up, that the abscess be completely drained and that no raw surfaces remain in apposition so that the wound may heal solidly from the bottom.

Third, the post-operative treatment is of course of great importance: at the time of operation the wound is generally packed, this packing being removed in from 48 to 72 hours. After this, the packing is so placed that it will act more as a drain than a pack. The wound of course, is treated with hot applications and with antiseptic solutions, either irrigations or sprays, and exuberant granulations removed either by curetting or by the use of silver nitrate or copper sulphate.

**Granville S. Hanes,** Louisville: There are few pathological conditions encountered that are more deceptive in their extent and behavior than abscesses around the terminal bowel. This remark, of course, includes the complications that occur in fistulae which are chronic or unhealed abscesses. The extent to which pus often forces itself into the surrounding and distal structures is astounding. Failure to keep this important fact in mind accounts frequently for unsuccessful treatment in obtaining complete relief in this type of pathology.

There is no immunity assured against abscesses in this locality. I have seen them in children not more than a few days old. They occur at any age and, as I have said, any one is susceptible.

There has long been an error in the minds of many in regard to the internal opening in rectal abscesses and fistulae. The mucosa of the rectum is one of the most resistant soft structures that we find in the human body. A normal mucosa seldom yields and breaks down under pressure of pus around the rectum. The pressure may be sufficient for pus to extend in various directions but does not perforate the rectal wall except in such cases as stricture, ulcers or some other form of disease that affects the mucosa directly. The breaking into the bowel is below the lower margin of the mucosa where it joins to the lining membrane of the anal canal. It is important to remember this fact as injury could be done by unnecessary pressure against the rectal mucosa in an effort to locate the opening into the bowel.

It is a flagrant error for pus to be allowed to burrow along the loose cellular tissues until finally some point yields to pressure and thus permits its escape, or is, at a late stage, opened by the surgeon after great damage has been done. Extensive and complicated abscesses would rarely occur if pus were evacuated in the very early stages of abscess formation. This can be done very easily by the use of local anesthetics. A liberal crucial incision should be made, the object being to avoid the formation of a fistula or a recurring abscess.

The most colossal mistake that can occur in these conditions is to allow the abscess to become fully developed before opening. Patients, of course, do not realize the damage that may occur from delay. Doctors, however, often advise the patient to wait until pus is fully established before the evacuation is undertaken.

If abscesses are treated early by liberal incisions, even before the formation of pus, we would have few troublesome fistulae to deal with.

Insurance companies and many doctors attempt to lead us to believe that a large percent of rectal abscesses and fistulae are tubercular in character. This is undoubtedly a mistaken interpretation of the real character of anorectal abscesses and fistulae. On account of this veiw patients who have thus suffered are unjustly penalized and often fail totally to obtain insurance. Many patients who have pulmonary tuberculosis may be relieved completely of abscesses and fistulae if their resistance is fairly good. Many individuals, because they were under weight, have been accused of having tubercular abscesses when thorough investigation fails to warrant such an opinion.

I feel sure that the dorsal posture, with the thighs well flexed upon the abdomen, supported with the hands in the popliteal angles and the knees held well apart affords the most desirable position obtainable in the management of ordinary rectal conditions when the patient is not under the influence of a general anesthetic. The nates are well separated by posture, no assistance being required. Various pathological conditions can be easily inspected, the walls of wounds are separated and dressings can be removed and reapplied with the minimum amount of discomfort to the patient. In this posture patients can not contract the parts and interfere with examinations, etc. as easily as they can and will do when in the lateral or prone positions.

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**Circulation in Tubed Skin Flaps.**—German and his associates have successfully tried out the clinical application of the information obtained in their experimental study of tubed flaps during the last three years. It has also been of value in determining the time of division of the pedicle in those long pedicled flaps which are raised and without being tubed are immediately sutured ready for transfer. The longer the tubed flap is back into the bed from which they came until allowed to remain intact, within certain limits, the more stable the blood supply becomes, but from their observations, both clinical and experimental, they are convinced that the establishment of circulation in tubed skin flaps occurs considerably earlier than was previously thought possible and consequently that it is safe to divide the pedicle sooner.

# SOME PRACTICAL AND THEORETICAL POINTS IN OXYGEN AND CARBON DIOXIDE THERAPY*

W. Hamilton Long, M. D.

Louisville.

When asked as a member of the faculty to select a subject along the lines of the work in my own department, I gave consideration to various phases of anesthesia in the City Hospital and in the Medical School, and coming to the conclusion that these subjects were of interest to a more limited group I decided upon a liberty, namely, a brief discussion of oxygen and carbon dioxide therapy. This phase of treatment is not, at the City Hospital, strictly in our division though of course these agents are used daily in our anesthesia.

It is rather because of the familiarity with these gases that an anesthetist naturally acquires, that in private practice we find ourselves drawn into this work in an advisory and consulting capacity. The handling of compressed gases, the reduction of pressure, measurement of flow, mixing in percentages, are mechanical incidentals with which anesthetists have long had to be familiar; also a knowledge of various technics and apparatus for their administration has long been acquired.

No subject has been more conspicuous in the literature in the last few years than has that of oxygen therapy, and oxygen-carbon dioxide therapy. Like most therapeutic methods and agencies, which appear with a rush of enthusiastic advocacy, (modern oxygen therapy began with Haldane in 1917 in treatment by oxygen of war gas poisoning) it must await the judgment and evaluation of those conservative clinicians, who move slowly, safely, keep their feet on the ground, and are not swept away by the high pressure salesmanship either of the enthusiasts in the profession or of those interested commercially: the manufacturers and salesmen of tents, oxygen equipment, oxygen and carbon dioxide gas, etc.

The time limit will confine us to a consideration only of the outstanding indications for the use of oxygen and $CO_2$, together with a brief description of three of four methods for their exhibition, and to a comparative evaluation of these technics.

While many are enthusiastically advocating oxygen therapy for a dozen distinct ailments and diseases, including almost all respiratory affections, heart and circulatory disturbances, regardless of type, kind, or symptomatology; metabolic diseases and allergic reactions, it seems logical to stop at the inviting threshold of this Utopia and, before we enter, consider the nature and physiological action of these gases, then try to apply them to conditions that show a definite need for the known benefits to be derived from their use.

First: Oxygen is one of the three primary necessities for the maintenance of animal life, and the one most urgently and constantly demanded; (the other two being food and water). It has been said "Man may live weeks without food, days without water, minutes without air." Carbon dioxide is the by-product, the result of oxygen metabolism in the tissues, and is nature's respiratory stimulant. It is the spark-plug that keeps the muscles of respiration—all of which are voluntary and can be stopped at will, working without our conscious effort, and while we sleep. While we can hold our breath for a short while, the accumulation of carbon dioxide which commences as soon as we start the process soon so stimulate the respiratory center that in a period of from 30 to 60 seconds we are forced by overpowering air hunger to expel the carbon dioxide and fill our lungs with air. Thus from these elementary facts we should build, with logic and reason our therapeutic use of these gases.

Primarily then, oxygen therapy is indicated in any condition in which there is a deficiency of oxygen felt by the patient or subjectively observed or deduced by the physician. Air hunger need not progress to the stage of cyanosis to be noted, subjectively or objectively, and a "lazy breather" may, as in post-operative, pneumonia prophylaxis, to be mentioned later, need additional oxygen for his welfare, as well as a percentage of carbon dioxide to stimulate its ingestion.

We need remember that a patient suffering from a deficiency of oxygen has in his residual alveolar air and in his tissues, a relative over supply of carbon dioxide and will feel as a result of this, air hunger in proportion to this lack of balance, which is evidenced when existing in slight degree only by more frequent efforts to take a "deep breath" and frequent yawns. This is the pre-cyanotic stage and one would think that the addition to his intake of atmospheric air of a sufficient quantity of pure oxygen to establish the proper proportion and balance would give the expected relief. It usually does, but here a little tricky respiratory physiology intrudes itself in the form of a fact which this writer doesn't explain: viz, that extraneous carbon dioxide—i. e. from a tank, tho chemically identical with ones own tissue generated carbon dioxide, will act in many cases more positively and more quickly in a proportion of from 5 to 10% with oxygen, and will bring relief to a patient who, air hungry and even cyanotic before its use, seemed unable to utilize his own over accumulation of the gas to its physiological purpose.

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Oxygen therapy in its simplest and most valuable application is seen in its use in pneumonia. Here we have a disease in which a considerable area of the lung which should be functioning is out of commission, with the result that, in spite of a marked increase in the respiratory rate which is partly febrile, but principally compensatory, there are still persistent symptoms of anoxemia, which, added to the toxaemia the patient must fight, adds materially, first to gravity of his prognosis, and second to his conscious distress. The latter can usually be entirely relieved by the addition of oxygen, and it is obvious that if we enrich the air he breathes with sufficient oxygen to give him his minute-volume supply, or the amount of oxygen per minute that the patient needs to obviate oxygen deficiency in the tissues, we will overcome his dyspnea. If he has to absorb this through the air cells of a lung and a third or one lung instead of two full lungs, naturally the air must be enriched with pure oxygen, or the respiration must take on such an acceleration as soon to fatigue and "burn out" a sick individual, fighting an intense toxemia, and needing, not additional muscular exercise, which of course is what fast, labored respiration is, but on the contrary, the utmost to be achieved in physical rest. Oxygen therapy in pneumonia accomplishes the above benefits and reaches its influence, as is readily seen to the heart, which has been stepped up in an effort to drive the blood faster to its limited oxygen supply. It is logical to expect a prompt diminution of the respiratory rate and volume together with a reduction of the heart rate in pneumonia of either type promptly upon the beginning of oxygen inhalation, together with a great relief of the dyspnea, and the prompt dissipation of cyanosis.

Both in private work and at the City Hospital oxygen therapy has been used only in respiratory conditions, and in occasional cardiac decompensations with dyspnea, or air hunger; though we would like the opportunity and time and equipment to apply it to such other conditions as hyperthyroidism.

As to methods of administration, there are three, and they may be named in the order of efficiency, comfort to the patient and ease of application on the part of physician or nurse: 1, The tent. 2. The naso-pharyngeal tube, and 3. The mask or nasal inhaler. First, the tent: There are numerous makes on the market. The essentials to be met are as follows: It should be of closely woven or rubberized fabric so as to be impervious to air from without or the oxygen mixture within. It should be roomy enough to allow the patient some freedom of movement, and prevent his disarranging its placement or raising it side-walls during restlessness or delirium. An opening must be provided for service to the patient, and thus must close tightly when not in use. Windows to admit light and permit vision are provided and are made of cellophane or celluloid or cellulose acetate. It must completely enclose the patient if an oxygen concentration of 40 to 60% is to be maintained within it. It must be supplied continuously with cooled oxygen, that a comfortable temperature may be maintained. For this purpose the oxygen traverses many feet of coiled tubing submerged in ice. The oxygen itself is preferably provided in the large high pressure 20 feet tanks or cylinders and is, for economy's sake, the regular commercial oxygen, which is of a high degree of purity. A gauge and meter to such a tank is necessary to reduce the pressure, assuring a gentle flow and to measure the flow, usually in liters per minute. Any tent outfit which meets the above requirements is satisfactory. Some are provided with a motor blower to effect a more rapid circulation and exchange of the tent contents, but others lack this additional equipment and are equally satisfactory. There is a devise for testing the oxygen concentration to be had within the tent, but the patient's condition and symptoms are usually a sufficient guide. At the beginning oxygen should be flowed rapidly into the tent direct from the tank through by-pass on the gauge until the walls slightly billow out from the pressure. The gauge may then be set to deliver 6 to 8 liters per minute which will maintain a 40 to 50% oxygen concentration. In pneumonia oxygen treatment should be instigated immediately the diagnosis is made and continued without interruption until the crisis is past, or in the broncho type until convalescence is well under way.

Second, Naso-pharyngeal tube: A tube fitted through the nose into pharynx about 4½ inches from exterior nares and fastened in place for permanent retention. It is connected up with the gauge and tank and a gentle and continuous flow of oxygen is maintained at about 6 to 7 liters per minute to assure a 50% concentration for respiration. This method is cheap and efficient though not so elegent or refined as a tent nor so comfortable. The catheter may cause some irritation, but after a short time the patient becomes accustomed to its presence.

Third, Nasal inhalor and rebreathing bag: This is not recommended for continuous therapeutic administration, though for occasional intermittant use it may be satisfactory. The oxygen room or chamber is an expensive elaboration of the tent and is just what the name implies—a whole room of practically air tight construction into which the oxygen is flowed. It is enormously expensive in original construction cost and in oxygen use.

About one phase of oxygen therapy, so far as the tent system goes, there is little uniformity of opinion, and that is as to carbon dioxide. It seems a contradictory sort of thing to equip an oxygen tent with a soda-lime filtration outfit to filter out the patient's carbon dioxide and at the same time to put on it an attachment to add extraneous carbon dioxide to the oxygen. As was mentioned previously, the added carbon dioxide, probably because it is more controllable, is at all times a dependable and ready respiratory stimulant, whereas the patient's own $CO_2$ probably because of imbalance due to upset metabolism of disease and toxemia, is not. Provision should be made for $CO_2$ in conjunction with the oxygen in small quantities intermittantly (5 to 10%) to effect better drainage, even though the patient is not apparently in need of respiratory stimulation.

An interesting theory as to post-operative pneumonias, so earnestly fostered by Professor Yandell Henderson, though not original with him is the atelectatic theory. It is that most if not all post-operative pneumonias start from tiny atelectatic areas here and there in the lung at the bronchiole terminals, where a few air cells fill with mucous, and the tiny bronchioles leading to them plug up. There is thus no drainage of these small areas and they furnish perfect media for bacteria. They are caused by the very shallow breathing of the patient following surgery, because his resistance is low and his metabolism slowed down, causing a continued shallow type of respiration and this is probably further aggravated by his conscious or unconscious effort not to breathe deeply because of the pain caused by an abdominal incision. At any rate there is now rather widely advocated the routine use, intermittantly or continuously for 2-3 days of oxygen and $CO_2$, the latter in sufficient concentration to stimulate the respiration to the extent of preventing the formation of these small areas of atelectasis, by assuring though deeper respiration thus achieved, the aeration and drainage of all area.

Further therapeutic uses of oxygen $CO_2$ mixtures include: Treatment of persistent hiccoughs, which can almost always be temporarily stopped by high $CO_2$ concentration with a mask and rebreathing bag, or other technic. This can be repeated each time the distressing symptom asserts itself, and will give periods of freedom between attacks for which a patient is extremely grateful. The long continued hiccoughing of some terminal conditions such as uremia, which adds so to the distress of a dying patient, lasting as it does sometimes for days, has been nicely controlled.

Oxygen $CO_2$ insufflation in the resuscitation of the newborn with atelectasis neonatorum or other types of asphyxia is the best treatment available, in skilled hands.

$CO_2$ with air oxygen inhalation is a method of treating acute alcoholic coma in at least one hospital, a large municipal institution to which, as in all City Hospitals, plain drunks are taken when picked up on the streets by the police. It is said that by this treatment, which has added to it, gastric lavage, acute acoholics who formerly spent a day or a night sleeping off their drunk, are now able to walk away in a few hours.

For such gas poisoning as that of carbon monoxide and nitrogen tetroxide prompt oxygen-carbon dioxide inhalation offers the best treatment.

Whole books could be written on the subject of oxygen $CO_2$ therapy, made up entirely of quotations and references, but the speaker has tried merely to interest his listeners in a field that he believes is probably just opening, and which at least has been proven to have a great deal of real merit.

There is a real need for an oxygen tent, which is simple in construction, economical in cost, really efficient and easily portable, that the physician might own himself, for easy and prompt installation in the home. Several such units have been advanced, but have proved only partly satisfactory, usually because of insufficient cooling, or too small. Creating and maintaining a comfortable low temperature in an empty tent with a continuous volume of ice cooled oxygen is fairly easy, but maintaining that temperature in the presence of a patient, whose body heat emanations, probably increased by fever, and whose expirations tend rapidly to build up heat, is difficult and the non-cooled tent in my hands has been a failure for continuous administration. The problem is an ice cooler—which it seems must be so large as to render the whole outfit impractical for ready portability in one's own car.

## DISCUSSION

**John W. Heim, Louisville:** This is a very fine paper that Dr. Long has given us on the more recent uses of medical gases. I agree with him thoroughly on the carbon monoxide poisoning. The carrying power of the blood corpuscles is partly destroyed in carbon monoxide poisoning, and oxygen is the treatment, not only to revive the patient, but they should have oxygen intermittently for days.

Ever since Yandell Henderson said carbon dioxide was a stimulant to respiration, many doctors have used it in the wrong place, I think. It has been proved conclusively that carbon dioxide only stimulates respiration when the respiratory centers are well oxygenated, and therefore it is wrong to give carbon dioxide when the blood and the tissues have too much carbon dioxide. It is wrong to give carbon dioxide to resuscitate a patient who has stopped breathing, especially if he has stopped breathing very long and is cyanotic. Pure oxygen is the thing to give. Oxygen is the best thing we have in the operating room for resuscitation. After the patient breathes and has a good color and the oxygen content is above normal, but he doesn't breathe well for some other reason, carbon dioxide will stimulate the respiration.

I think it is also wrong to use carbon dioxide to resuscitate a newborn that is not breathing and is cyanotic. Resuscitate it with pure oxygen. The only reason more children haven't been killed trying to resuscitate them with carbon dioxide is because only five or ten per cent is used. If pure oxygen were used, resuscitation would be much quicker.

**Wallace Frank,** Louisville: I want to emphasize what Dr. Long has said about the value of oxygen in postoperative complications. Since the new Norton has been built with its operating rooms equipped to give ethylene, we use ethylene almost entirely, and as a result see relatively little post-operative bronchitis or lung irritations which not infrequently follows the use of ether. There are a few individuals, however, in whom ethylene is not satisfactory and ether is required. Those requiring ether often require large quantities of it, and not infrequently one gets decided congestion of the lung, with rales and cough immediately following the return from the operating room. If you take that individual and put him in an oxygen tent, you will find that within twenty-four to thirty-six hours his lungs will clear up, his temperature will come down, and he will be perfectly comfortable. This is the type of case that heretofore usually developed ether pneumonia. We aren't seeing any more ether pneumonia at all. We do occasionally see this postoperative congestion following the use of ether, but we have not seen a single case of true pneumonia. Fortunately at the Norton we have three or four tents, and one is usually available at all times. If all happen to be in use, the other institutions in the city are sufficiently kind and generous that in case an individual needs an oxygen tent we can borrow one. I think that has held true for the other institutions in their relationship with us, that when they have individuals that need it they come to us for help.

You would be surprised what a marked good effect oxygen has in these cases in preventing, I think, the development of pneumonia.

**S. C. Frankel,** Louisville: I want to speak on one point in Dr. Long's paper, and that is with reference to the use of the oxygen tent in pneumonia. I feel that anyone these days who does not use the oxygen tent in the treatment of most cases of pneumonia is certainly not treating his patient according to the latest methods. You see a patient delirious, temperature 104 or 105, who is laboring for his breath, respiration 40 or 50 or 60 per minute, pulse 150 to 160, cyanotic, and then you see his condition after being placed in an oxygen tent where he becomes quiet and the cyanosis is materially relieved, if not entirely, where his respiration comes down almost half, along with the pulse rate, it is remarkable that the use of oxygen applied scientifically can work such wonders. With the oxygen tent we can regulate the amount of oxygen we wish to use and the percentage I generally use is between 40 and 50 per cent. The air, you know, contains 20 per cent, approximately, of oxygen, and if you can double this amount of oxygen in your tent, plus the cooling effect that the refrigeration of the oxygen has, it makes the patient certainly much more comfortable and helps very materially in the application of your therapy toward the treatment of lobar pneumonia.

In lobar or lobular pneumonia where the respiration is very rapid and the patient is more or less cyanotic, this can be used from time to time or continuously.

I agree with Dr. Long in what he said with reference to the use of the oxygen tent. I feel as soon as you make a diagnosis of a lobar pneumonia, the patient should be placed in the tent and kept there practically throughout the illness or until he has passed the crisis.

There are several types of oxygen tents. The type I like better is the oxygen tent with the sleeve opening to the side so the patient's temperature can be taken, where the patient can be fed, and where you have an escape of very little oxygen, whereas if you have to raise the whole side of the tent and do that often the amount of oxygen that you are using is very indefinite.

I turn the gauge on at first to about seven liters per minute and then back to about six. With proper care if you have no escape of oxygen, at six liters per minute you generally get between 40 and 50 per cent of oxygen in your tent, which is approximately the percentage necessary to carry your patient to a successful termination of his illness.

**W. Hamilton Long,** (in closing): I want to thank the gentlemen for their discussion. Why you should give a patient $CO_2$ extraneously who is already blue with his own accumulation of $CO_2$, as I said in the paper, is a little tricky. The fact is that it sometimes steps them up when their own accumulation of $CO_2$ doesn't have the desired effect.

I don't know about oxygen therapy in the future. The man I quoted, John Evans of Buffalo, has had a good deal of experience with oxygen therapy, experimentally, in many conditions. I don't think oxygen could hurt any body, regardless of his disease, and I think the effect he observed in the healing of burns is especially interesting. In another paper he states that in a big abrasion, wherever there is lots of destruction of superficial tissue or skin from trauma other than burns which simulate burns in their effect, the reconstruction is vastly improved, he is sure, by intermittent oxygen therapy. He thinks these patients should get it two or three hours out of every twenty-four.

The atelectatic theory of pneumonia following surgery has happened to relieve our conscience. It has been said that no pneumonia can be called a true ether pneumonia the first symptoms of which begin more than twenty-four hours after the ether has been administered. The atelectatic theory sounds extremely interesting and logical.

We can do with oxygen the things that we know oxygen will do, those logical and scientific treatments supplying actual oxygen need, as in pneumonia and cardiac conditions, all conditions with anoxemia and air hunger, and then we can also play with it empirically without hurting anybody, I think, and find out more about it in the future.

I think all hospitals should have more oxygen tents than they have, and I think they think so, but oxygen tents are very expensive, and what is needed is an efficient but less expensive type of oxygen therapy. Some pretty ingenious fellows are working along that line right now and something is going to come out of it, something much less expensive, something portable, something a man can put in his automobile and take to a hospital or to a patient's residence and at the same time something that will be truly efficient.

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**Eczema.**—Rost shows that from the etiologic causal genetic point of view the definition of the term eczema is no longer tenable. He realizes that this is nothing entirely new, for many conditions to which formerly the term eczema was applied have been proved by recent studies to be different skin disorders. He shows that a number of cutaneous disturbances, still designated as eczema but belong to other groups of skin diseases. From this point of view he discusses premycotic, seborrheal and scrofulous eczema, and eczema of the leg. For the latter, which develops on the basis of the status varicosus, he suggests the term dermatopathia cyanotica. He discusses eczemas developing on the basis of metabolic disturbances of external noxae, and finally those in which idiosyncrasy plays a part.

# RECENT DEVELOPMENTS IN THE DEPARTMENT OF PSYCHIATRY*

W. E. Gardner, M. D.

Louisville.

In a relatively brief discussion of recent developments in the Department of Psychiatry of the University of Louisville, School of Medicine, we should not lose sight of the fact that, for many years preceding the consolidation of all the medical schools in Louisville, some instruction in mental diseases had been given in the various schools. This was done by the professors who either lectured, or held clinics, on diseases of the nervous system, and while usually conducted by those who were giving most of their attention to these particular subjects, it was not unusual for a Clinical Professor of the General Practice of Medicine to conduct such courses of study. Time will not permit that we refer, individually, to even a few of those outstanding professors whom many of you remember quite vividly, some of whom are still living and in active practice.

Following the consolidation of the various medical schools with the University of Louisville in 1908 instruction in mental diseases was, for a number of years, given by our well known and much beloved neurologist, Dr. Jno. J. Moren, who, while paying particular attention to the teaching of organic neurology, not only gave a number of lectures on mental diseases, each year, but also conducted clinical demonstrations at the Central State Hospital at Lakeland. Having been associated with Dr. Moren in the preparation of cases for these clinical demonstrations, the writer, who was Assistant Physician, and later Superintendent, of the above named institution, was requested in 1913 to deliver a portion of the Lecture on Psychiatry which, at that time, were being given by Dr. Milton Board, who had had considerable practical experience in psychiatry, while Superintendent of the Western State Hospital at Hopkinsville, Ky., and later proprietor of a private sanatorium in this city.

With the completion of the present City Hospital, there was at once available in the psychopathic wards of the institution considerable clinical material for instruction in psychiatry, which was, at first, accessible only to the internes of the hospital in their rotating service, under the supervision of the instructors in psychiatry, who were also members of the visiting staff. Within a few years, however, after the retirement of Dr. Board, who had given up active practice, and the appointment of his successor, Dr. H. B. Scott, as

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Lecturer in Psychiatry, the writer was advanced to the position of Adjunct Professor of Mental and Nervous Diseases, and ward round instruction was begun with various sections of the senior class of medical students, in rotation, under the alternating supervision of Dr. Scott and myself.

Previous to 1921 all professors and instructors in mental and nervous diseases in the University of Louisville were a part of the Department of Medicine, but in that year the Department of Neurology and Psychiatry was established, with Dr. Moren at the head of the department. Dr. Scott had been advanced to the position of Instructor in Psychiatry, and Dr. E. L. Dravo, a member of the department, to that of Instructor in Neurology. In 1923, Dr. Moren asked to be relieved of all responsibility for the teaching of mental diseases in the department, and the writer was made Assistant Professor of Psychiatry. The change in title, here, was the forerunner of the separation of the one department of Neurology and Psychiatry into two distinct departments, which did not occur, however, until 1927, at which time the Department of Psychiatry was first established as such.

Dr. Moren who had, for some time, been Clinical Professor of Neurology was placed at the head of that department, and the writer was now advanced to the rank of Clinical Professor of Psychiatry and placed at the head of the Department of Psychiatry. In the following year, 1928, Dr. Scott was advanced to the rank of Assistant Clinical Professor of Psychiatry, and Dr. Frank J. O'Brien, a recent graduate of the University, was made Clinical Assistant in Psychiatry. Dr. O'Brien, who was, also, Director of the Psychological Clinic, was in 1929 advanced to the rank of Instructor.

While it was becoming increasingly evident that further additions to the personnel of the Department of Psychiatry would enable the department to give more adequate and detailed instruction in psychiatry than had been given up to this time, yet it was significant to the writer that, in all the years, now almost twenty, he had been connected with the School of Medicine of the University, and for many years preceding that time, graduates of our school had received such instruction in mental diseases that many of them had been stimulated to further study of this important branch of medicine, and have become outstanding psychiatrists of national reputation. One, a graduate of the class of 1903, was Assistant Medical Director of the National Committee for Mental Hygiene, and another, of the class of 1917, was President, last year, of the American Association for the Study of the Feebleminded. Still others have occupied positions of similar importance. Outstanding examples of this sort have stimulated us to further development of the department.

For the past four years, in addition to the didactic lectures in psychiatry which have been continued to both junior and senior medical students, during the second semester of each term, ward round instruction has been given to the junior students in the form of clerkships, extending throughout the year, with the various sections of the class in rotation, as was formerly done with the senior class. In addition to the supervision of the case histories and physical examinations by the respective junior internes on their rotating service, the wards have, to some extent, been under the supervision of a senior interne for the past two years, but particularly during the past year, within which time three senior internes were assigned to the psychopathic wards for periods of four months each.

With the assignment of a senior interne to the wards for a sufficient length of time for him to develop a more definite interest in psychiatry by his daily contact with the patients, under the supervision of the visiting staff, and his own supervision of the junior medical students in their ward clerkships, there has not only been an improvement in service to the patients, but students and internes have all acquired a more practical knowledge of psychiatry than was heretofore available in their short periods of service on the psychopathic wards.

Within this time much more effort has been made in getting an adequate family and personal history of every case admitted to the psychopathic wards, and in as much detail as possible, by the students, from the relatives of the patient, inasmuch as that given by the latter is, in many instances, not altogether reliable. The social service department of the hospital has given valuable assistance in this regard, in many cases, particularly in getting the relatives of the patients to come to the hospital, but, on account of a limited personnel, no worker could be assigned to the psychopathic wards alone, much less one who had had any sort of training in psychiatric case work. There is no part of the student's training in psychiatry more important than that of getting a complete family and personal history of every case that comes under his supervision, for only in this way can he get an adequate conception of any abnormal tendencies in the patient's background, or any sort of grasp of those factors which have played an important part in the development of the type of personality of the patient himself, from his infancy on through his childhood, school life and adult occupations, if any.

The physical and neurological examinations are, of course, an important part of the student's training in psychiatry, but the knowledge of such methods of examination is usually obtained in other departments for his instruction, particularly in the Neurological Department, and he should never lose sight of the importance of using all laboratory facilities and other methods of study in the Department of Medicine. If he has the ambition to become a psychiatrist, he must first be a doctor, and a good one at that, lest he, in his enthusiasm to diagnose his patient's difficulty by a prolonged and detailed psychological analysis, may overlook some organic or infectious disease which is an important factor, either in the etiology or the contributory symptoms of the case in hand. He must know his anatomy, physiology and chemistry as well as pathology and other important branches of medicine, and not jump at the conclusion that, because there is, today, so much psychology in psychiatry, one hardly needs to become a doctor at all to be a good psychiatrist, provided he has had a thorough course of training in modern psychology. There are some such so-called psychiatrists, but they are not now, and probably will not become the outstanding teachers of psychiatry in any of our well recognized medical universities.

There is at the present time a department of the National Committee for Mental Hygiene which is interested in promoting more adequate facilities for the teaching of psychiatry in our medical schools, and the University of Louisville has had the advice of this department during the past year. While its primary interest is to develop the idea that more instruction should be given to medical students in the borderline types of mental disorder, such as the psychoneuroses, with which the profession, in all its branches, comes in contact in greatest numbers, as well as instruction in methods of prevention, particularly applicable in infancy, early childhood and adolescence, yet in a very wholesome way it recognzes the importance of adequate instruction in the more outspoken psychoses of adult life.

With these purposes in view, the University of Louisville has within the past year under taken to develop an outdoor division of the Department of Psychiatry by its affiliation with what was formerly known as the Psychological Clinic under the supervision of the Louisville Society for Mental Hygiene, but which is now designated, the Mental Hygiene Clinic; and while the latter will, for the time being, still receive its financial support from the Louisville Community Chest, its Director and other members of the staff will be under the control of the School of Medicine of the University.

The Department of Psychiatry has been fortunate in that it has secured as Director of the Mental Hygiene Clinic, and Associate Professor of Psychiatry, one who has not only had good medical training but a rather broad practical experience in clinical psychiatry, including state hospital service, Dr. S. Spafford Ackerly, more recently a member of the staff of the Yale University Institute for Human Relations. Dr. Ackerly took up his work here on July 1st, and is now actively engaged both at the Clinic and on the psychopathic wards of the Louisville City Hospital in which institution he is director of the psychiatric service. In addition to these duties, as Associate Professor of Psychiatry, he is giving instruction to the junior medical students, and supervising their ward clerkship in psychiatry. It is our plan, in the further development of the department, that a limited number of senior students shall be assigned to the outdoor division, (Mental Hygiene Clinic), where particular attention will be given to the behavior problems of children, and the minor mal-adjustments of adult life.

In addition to the acquisition of Dr. Ackerly, who might be considered a full-time Associate in Psychiatry, the department, this year, has a Resident in Psychiatry on the psychopathic wards of the City Hospital, a senior interne in psychiatry, and a junior interne on rotating service.

We believe, with such a set up as has been indicated above, in which Dr. Scott and the writer, by virture of our seniority and rank in the department, will still have an active participation and continue to give a large portion of the clinical instruction to both junior and senior medical students, that a definite step forward has been made in the Department of Psychiatry of the University of Louisville. Such a development having been accomplished within a period of five years from the time the department was first established as such, would seem to indicate that we have made some progress, and that there has been an increasing interest in the study of psychiatry, at least in this section of the country.

In conclusion, the writer wishes to express his sincere appreciation and acknowledge his indebtedness to Dr. Moren, Dr. Scott, Dr. Dravo, Dr. O'Brien, Dean Moore and others, for their assistance in the gradual development of the department until such time as the present and more adequate facilities had been provided.

## DISCUSSION

**S. S. Ackerley, Louisville:** I want to express my appreciation for the privilege of being connected with the University of Louisville School of Medicine and of receiving the right hand of fellowship from Dr. Moore as well as from Dr. Gardner, who has for years been a leader in this field of psychiatry and has taught several hundreds of medical students in this important branch of medicine. I have not had the privilege of meeting Dr. Moren, but I have heard of his splendid contributions in the field of neurology and psychiatry in this section of the country. Dr. Gardner's paper shows the long continued development in this department. There has been no mushroom growth here.

This field of medicine is rapidly increasing in importance. This is evidenced when we stop to consider that 51 per cent of all hospital beds in this country are filled with insane or mental patients. That is astounding and it is increasing. I am particularly struck during this period of depression with the amount of instabilities that are coming out in men who were practically stable when they had a job and when things were going well. Consequently these nervous and mental diseases are increasing as economic conditions are becoming more and more difficult. It is for us to try our best to teach better and better students of medicine to go into the difficult field of psychiatry and see if in some way we cannot chart the field of prevention. After all, that is the important part of psychiatry and will be for generations to come.

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**Pellagra-Preventive Value of Yeast, Haddock and Peas.**—In his study of pellagra-preventive foods carried out in a state hospital, Wheeler tested dried bakers' yeast (autoclaved), canned flaked haddock and canned green garden or English peas for their pellagra-preventive potency. He observed that dried bakers' yeast is a good source of the pellagra-preventive factor, and its potency is retained after heating in the steam autoclave at 15 pounds pressure for seven and one-half hours. Canned flaked haddock contains the pellagra-preventive factor but in an amount so small that a relatively large proportion is required to supplement adequately an otherwise pellagra-producing diet. He describes some less commonly observed symptoms associated with the use of an intermediate allowance of the haddock and discusses their significance. Canned green peas suppiy the pellagra-preventive factor and may be found a highly practcial and convenient source of this essential in the pellagrous scetions during the spring months when pellagra-preventive supplements are not easily obtained.

# RECENT ADVANCES IN PEDIATRICS*

JAMES H. PRITCHETT, M. D.

Louisville.

There is a vignette representing the Master healing a sick child while the multitude look on in sympathetic awe. The world in general has for a long time been interested in the child; the artist, the clergy, the poet, the teacher and the sculpture have been active in his behalf. The medical profession has been slow in accepting the challenge, but we are at last aroused. The White House Conference composed of a group of medical, religious, social and educational leaders met and discussed the various problems of infancy and childhood and how best to remedy them. The problem, states Kuglemass, falls into three groups: first, the protection and stimulation of the normal child; second, aid to the physically defective child; third, the alleviation of the delinquent child. We are told that the number of children in America is forty-five million, thirty-five million of which are fairly close to a normal standard. Twenty per cent of growing children have shown signs of ill health and deformity. To this task will the various committees appointed at the White House Conference, function. A gigantic responsibility, but a tremendous opportunity. Such a movement marks a progressive step in pediatrics.

In the past few years there has been a marked change in the pediatric program of our schools of medicine. This change in turn has caused the modern physician to become somewhat pediatric minded and in so doing, has brought to pass the first milestone of pediatric progress, namely a *decrease in infant mortality.* Among the factors responsible for this, we may mention prenatal care, improved obstetrics, improved methods in resuscitation of the newborn, and a better understanding concerning the principles and practice of infant feeding. No longer do we arrange a highly complicated formula, x, y, and z, hoping the infant will and can take such a mixture. At the present time the individual baby is considered as to his needs according to age, weight and his capacity to care for the food given. Thus a check against over or under feeding can at all times be made. A routine program as to weight, age, formula, additional food and accessory foods can be arranged for every infant either through the advice of the family physician or through various infant clinics. The present method of infant feeding used by pediatricians, infant clinics and hospitals is that known as simple dilution of whole milk with the addition of some form of carbohydrate. In certain cases the use of evaporated milk, dried milk, and in diarrheas protein milk forms the foundation of artificial feeding.

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*Read before the Kentucky State Medical Association at Louisville, October 3-6, 1932.

Recent advances in the treatment of gastrointestinal diseases have been made. The use of drugs is a secondary matter. In alimentary intoxications or severe diarrheas the prime consideration is to prevent dehydration and acidosis by the use of glucose, saline or some special preparation as Hartman's solution, either by vein or skin. Intraperitoneal injection of saline is an easy and a fairly safe method of introducing fluids into the body. Blood transfusion is also a very valuable adjunct, especially if used early. As soon as possible food in the form of protein milk, boiled skim milk or some such is started. It may be well to mention the fact that while saline is used universally in diarrheal conditions and vomiting, not infrequently dangerous symptoms may arise. Whether this reaction is a defensive mechanism due to a foreign substance causing a water balance is not definitely known.

The premature infant has ceased to be a sensation and an object of curiosity. In the light of our present day knowledge he has a much better chance of living. It is rather interesting to read and compare two papers on the subject of the premature: one entitled "Treatment of Prematures" as written and published some fourteen years ago, the other "Studies on the Premature," published in 1932. Despite the fact that prematurity has increased, Hess has proven that the mortality incident thereto has decreased. Valued contributions and detailed studies with reports have been made by Hess, Crawford, Von-Rouss, Cook Smith and others. Their conclusions are optimistic and we point with pride that such studies have indeed marked an advance in recent progress.

The question of feeding intervals, strength of food and amount, is an individual one. We know full well that the essentials in the care of the premature are fourfold: to prevent infection; to maintain body heat, to provide a suitable food (breast milk preferably), and to be ever on the alert for such dangers as cyanosis, diarrhea, vomiting and abdominal distention. Care of the premature if possible, should be entrusted to a competent nurse under the doctor's detailed directions.

Before leaving the subject of infancy, we would mention briefly that in the past few years we have been able to diagnose and treat successfully pyloric obstruction. This congenital pathological condition formerly frequently overlooked with resultant death, can now be recognized early enough to institute medical treatment, such as atrophine and the use of thick cereal feedings. It has been advocated by one of the European writers that the use of a rather high carbohydrate intake with a relatively small amount of liquid is well borne and that such a mixture will be retained. The idea being that this will furnish a high caloric intake with a minimum amount of milk.

By such measures many cases can be relieved. If despite such treatment there is no improvement, surgery can be resorted to with marked success. It is remarkable how the infant rallies following pylorectomy, especially if cared for early and fluids such as saline, glucose or blood transfusion are given prior to operation.

The second milestone on the road of progress is the prevention of deficiency diseases. Through recent studies by Steenbock, Mendel, McCollum, Schultz, Sure and others, whose articles have appeared from time to time in the summer issues of the J. A. M. A. much valuable information has been gleaned concerning the vitamin. While it is true that many false claims have been advanced and the subject matter in general has been somewhat commercialized, still certain definite conclusions have been drawn and their value in relation to the growing infant is unquestioned. The discovery of vitamins A, B (1) B (2), C and D and the fact that a diet deficient in these produces certain symptoms of diseases is generally accepted. Vitamin A produces growth and development. Whether it is an antiinfective or not is a question. Vitamin B is known for its antineuritic properties. It is said to have a dual action, thus the terminology B (1) and B(2). Vitamin C or the anti-acorbutic is known for its property preventing scurvy. We are especially interested in vitamin D because of its relationship to rickets. A diet deficient in this particular vitamin is a most important factor in the cause of rickets. Conversely, a diet rich in D is a preventive. Just how this vitamin exerts an influence on the calcium and phosphorus metabolism is not definitely known, but we are sure that one of the effects of small or moderate amounts of the antirachitic factor is to increase the amount of calcium and phosphorus retained in the body on any given diet. Vitamin D in the form of cod liver oil and ergosterol is our best therapeutic agent in the treatment of rickets. Adjuncts in treatment which are also very important are sunshine, mercury quartz lamp and irradiated milk, although the last mentioned acts best as a prophylactic or therapeutic agent in combating deficiency diseases.

The trend of modern medicine is that of prevention. To this end the term preventive pediatrics came into vogue. In a broad sense it means a comprehensive program, the purpose of which is prevention of disease and keeping the normal child well. It means the watch care of child life as the various phases from infancy, pre-school age, school age, prepuberty and adolescence quickly merge one into the other. The pilot steers his ship over rocky reefs and through treacherous shoals, through storm and sunshine, by chart and compass he seeks a safe passage and delivers his cargo of human lives into a sheltered harbor. Metaphorically speaking, the physician carries the child along preventing diseases such as smallpox, diphtheria, scarlet fever, typhoid and malnutrition; gives orders as to correction of dental malformations and other body conditions, and in many cases arranges a program for study and play. While such a plan is far from being universally adopted, it is of great advantage to the individual child. And even the poor may get such advice through various clinics maintained for this purpose.

Preventive pediatrics is far reaching in its effects. It reduces child mortality, it reduces the spread of communicable diseases, it reduces the number of physically and mentally delinquents and all together produces a better citizen for the future.

In closing, may we briefly refer to recent advances along preventive or therapeutic lines. The prevention of diphtheria by the use of diphtheria toxoid (which is devoid of horse serum) in two doses 1 c. c. two weeks apart will, it is claimed, give a quicker and more effective immunity than by the old method. We should urge the early protection against this disease. Many writers state that they believe that protection against scarlet fever should be routinely adopted just as it is against diphtheria. Such immunization is conferred by the use of five doses graduated as to their strength of scarlet fever toxin at weekly intervals. The prevention of measles through the early use after exposure of convalescent blood is a recent advance. Much is being done along the line of preventing juvenile tuberculosis. The use of the B. C. G. vaccine while routinely used in Europe is for certain reasons but little used in this country. The consensus of opinion is that it exerts no harmful influence on the growing child, and furthermore, it is stated that the mortality is practiically nil in children so protected. Such a procedure may offer much in the future. The diagnosis of tuberculosis has been made easier by the use of thorough physical examinations and when in doubt, employing such tests as Mantoux and by the help of the x-ray. Lumbar puncture as a therapeutic or diagnostic measure is becoming more and more a routine. Blood transfusion is being used more and more, being especially valuable in hemorrhage of the newborn, malnutrition, dehydration, diarrheas and in fact in any acute infections. Continuous venoclysis in the treatment of alimentary intoxication with either glucose or Hartman's solution offers a real advantage over the older line of treament. Karelitz and Schick report a series of cases so treated and their results have been very satisfactory. The use of calcium gluconate either intramuscularly (with sometimes unpleasant results) or intravenously is suggested in the treatment of tetany, lead poisoning and in certain phases of intestinal intoxication. Carbon dioxide and oxygen has proved of great value in resuscitation of the newborn, overcoming atelectasis, and in pneumonias, especially in the presence of cyanosis. It is also of value in certain cases of pertussis. We are more optimistic concerning asthma since we are now able to desensitize these little patients. This is no easy matter and requires the complete cooperation of the patient. Recent investigators in the field of syphilis have suggested an arsenical preparation called stovarsol as a valuable aid in treatment. The striking advantage that the drug can be safely administered by mouth commands its use in childhood. Magnesium sulphate either intravenously or intramuscularly in convulsions, especially those occurring in the course of nephritis, gives brilliant results in many cases. These are but a few of the more recent thoughts along the line of treatment.

Lastly, I would mention the splendid spirit of helpfulness and cooperation of other specialties toward the child. The internist, the surgeon, and the laboratory expert work in harmony for the good of the child, for they as well as we, derive much satisfaction in pointing out the road to health for the men of tomorrow.

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**Free Iodine in Treatment of Vasomotor Rhinitis.**—Levine reports favorable results in twenty cases of vasomotor rhinitis, in twenty cases of the early stage of common cold and in ten cases of hay fever from the use of subcutaneous injections of a 5 per cent solution of sodium iodide containing traces of free iodine. This treatment proves of value whenever the mucous membrane of the nose is waterlogged and appears to act by regulating the water output of the nose. Repeated injections are harmless except in laryngitis. He gave injections every two or three days until the symptoms subsided completely. As a rule, about six injections were required; in the more obstinate cases, as many as ten.

# THE PROGRESS OF NASAL SINUS DISEASES*

Walter Dean, M. D.

Louisville.

The prognosis of acute paranasal sinusitis is very good, barring the rare fulminating case complicating severe influenza or severe scarlatina. With few exceptions, the universal tendency is toward complete resolution. The treatment is essentially medical and recourse to surgery is rarely justifiable or safe. Naturally, if the bony anatomy of the nose is distorted to obstruction, swelling of the soft tissue in the crevices will accentuate the traps which prevent recovery and cause chronicity.

Chronicity demands surgical interference. If surgical drainage is not applied, the disease grows wider and deeper due to the several vicious circles. If surgery is properly practiced at the low point of remission, the prognosis is good both as to life and to health and also to comfort, though there will probably always be a tendency for the condition to retrograde under unfavorable conditions. Any organ which has suffered a serious inflammatory experience has lost the vigorous resistance it formerly possessed and easily reverts to its evil habit. The disease is also apt to recur because only one of the four pairs of sinuses can be obliterated and that only by from slight to severe facial disfigurement. The cavity of the maxillary antrum is roughly as large as a walnut, the sphenoid as large as a hickory nut. The ethmoidal system is a honeycomb of big and little cells packed between and around the other sinuses. The frontal varies from absent to from brow to bregma. Since exenteration is impossible in antrum, ethmoid and sphenoid and cosmetically objectionable in frontal, these cells must remain cavities for evermore and be treated surgically as radically as necessary but as conservatively as possible.

By conservative is meant that the meningo-cerebral integrity must not be violated. Low mortality operators preserve a certain constant margin of safety because they are aware that they have no absolutely definite land marks or topographical measurements to guide them on account of marked individual variations. They cannot afford to guess wrong so they constantly err on the side of longevity. Naturally they usually leave a thin area of disease next the brain plate for all time or until the next time trusting that improved drainage and ventilation, topical applications, better hygiene and medical care will make the patient well or almost well.

Fortunately sinus infection rarely goes deeply into the bony walls. Unfortunately sinus disease is seldom limited to a single sinus. There is a tendency for the four sinuses to mutually infect each other, especial blame attaching to the ethmoid cells. By the same token, any remedial effect accomplished in one sinus favorably influences the whole.

How then does one begin to unscramble the egg? There is no standardized plan. Each nose has its individual problems and solutions. Since a thickened deviated septum is often the first cause of chronicity, it should be rectified by submucous resection. This alone has cured many chronic cases as it reestablishes nasal breathing and decompresses the turbinal bones. The nasal chambers are frequently packed with cystic polypi. By a vicious circle pus sprouts them and they grow like magic to block the sinus outlets. We have learned that polypi and inflammatory oedema spell stubborn chronicity. Polypi must be repeatedly snared until the underlying diseased bone can be found and removed. Some genius in homely expression has said that "polypi are like bed bugs. You have to get the last pair of them before you can sleep well."

The four sinuses drain two above and two below the middle turbinate bone. When it is congenitally wide, or curved too much or thickened by inflammatory oedema it locks pus tightly in the sinuses. Stasis of pus in sinus leads to deeper and deeper pressure infection of the lining mucous membrane to or into the bony wall. A second vicious circle develops. Dr. Dabney has often said that middle turbinotomy is the best operation on the nose.

Time will not permit going further into the minutiae of operation. The purpose of each step is to establish adequate permanent drainage in each affected sinus with the least possible risk to the patient's life and the least possible trauma to the physiology of the nose. If gangway does not prove to be enough, the mucous membrane lining must be stripped off. This is contraindicated in the sphenoid on account of anatomical reasons. If the bony walls are carious perhaps we had better compromise with perfect health against death.

A necessary operative step is taken and its effect allowed to develop before the next step is planned and executed. The plan becomes simple or elaborate, rapid or tedious according to the peculiar local and general conditions of the patient. Many cases are quickly cured. Most of them are tedious. They require patience and persistence but is the only true way to restore a nose to its best possibility. It is hard on the patient's morale. There is loose talk about "not being operated at all because it takes six operations to accomplish anything." Some operator answers this by saying he meets this criticism by doing six operations at one sitting. And I say he must surely operate too far in several directions and not far enough in others; that he will have to do about five subsequent operations or what ever he calls them in spite of his selling talk. Physiological surgery gives nature a hand. Nature skeptics have the gamblers impatient instinct to shoot the works. Hajek of Vienna has another explannation. He says, "Small surgeons hating monotony sell large operations."

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*Read before the Kentucky State Medical Association at Louisville, October 3-6, 1932.

Let us take a composite patient now fifty years old. We will assume that he had lagrippe when a boy. During the attack he developed "facial neuralgia" and "catarrh of the nose." Every winter thereafter his doctor cured his neuralgia with acetanalid and everytime he went swimming his doctor cured his sun pains with phenacetin. The catarrh was stubborn and resisted the medicine the doctor had him snuff up the nose.

The specialist he was dragged to knew as much about sinus disease as Queen Victoria's or President Cleveland's specialists which was nothing, yet. But the specialist knew more about the different drugs to snuff up the nose than the family doctor did and had developed a charming stance and attitude with a spray. The tonsils and adenoids were clipped. But it was "No use in such a climate. He will grow out of it." But as time passes he gets catarrh of the stomach, bronchial catarrh, failure of bodily and mental vigor, visual disturbances et cetera and keeps his old symptoms intact. At last he approaches our web. Should he complain if we do not cure him by magic?

The least favorable prognosis is in the chronic case in acute exacerbation. I must stress the importance of waiting for a remission to operate, if possible, or at least to traumatize as small an area as little as necessary to establish drainage in the emergency and on subsidence to operate more freely. This is especially necessary in exacerbated frontal sinus disease which should routinely be operated by the two step method. In some of these cases there is quick destruction of previously diseased bone and metastasis into the brain or orbit may occur. The sinuses develop in the base of the skull, over the convexity of the cerebrum, and around three sides of the orbit, being separated from the brain and eye by the thinnest plate of bone. Through this protective inner plate pass lymphatics, arteries and veins. Each sinus has its particular anatomical weaknesses in this regard. Meningitis, cavernous sinus-thrombosis and brain abscess are caused by metastasis through thrombophlebitis or by direct extension through cario-necrosis. These complications are remarkably rare in sinusitis as compared to mastoiditis. Should infection of the cerebral cavity threaten, the most radical surgical intervention is indicated and a grave prognosis given. We have all seen cases of septic meningitis of undetermined etiology. Many of these are of sinus origin.

It is deplorable that we do not develop better knowledge and better statistics through necropsy. Fortunately, incarcerated pus under great pressure has a greater tendency to burrow through the outer cortex of the frontal and ethmoidal sinuses to appear as subperiosteal abscess or later as fistula. Such neglected cases are a reproach to civilization. The opposite deserves mention. There is a large group of people which insists on having sinus disease, on being treated for sinus disease, on even being operated upon for sinus disease when repeated clinical examinations are negative, transillumination is negative, roentgenograms are negative and there is little or nothing in the history or present symptoms to suggest the contention of sinus disease.

Since no branch of medicine is infallible, it would be strange if an occassional sinus empyema were overlooked. Let us remember that a sinus may lock so tightly that pus cannot escape to be seen or to influence the nasal soft parts enough to give us a clue. Exploratory operation is sometimes justifiable and may give a brilliant success. Roughly speaking I would say that it is about as difficult to say that the sinuses are negative as to say that a chest is negative.

At present no part of our group's work is so confusing to the public as sinus disease. Every ache or pain in the head is attributed to sinus disease. Particularly in the acute stage is it a painful disease. The sphenoid sinus alone comes in contact with the first six cranial nerves. But does any member present know of a single organ which may not cause headache or head pain? It is not our fault that we are getting too much of the lime light just now. After we pick them over, we send almost all of them back to you where they belonged in the first place.

In closing I will pay my tribute to the medical columnists. They detour sane people and make neurotics crazy.

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NEXT MEETING MURRAY

## COUNTY SOCIETY REPORTS

**Third District:** The Third District Medical Society met at the Helm Hotel at 11:00 a. m. on April 19, 1933, with thirty-three doctors in attendance.

### Report of Cases

Dr. T. H. Turner, Auburn, reported a case of Premature Separation of the Placenta.

Dr. Jno. H. Blackburn, Bowling Green, reported a case of "Hour-glass Contraction."

Dr. B. S. Rutherford, Bowling Green, reported a case of triplets, another physician being in attendance at the birth of the first baby of the triplets, and Dr. Rutherford then being called and attending the delivery of the last two.

Dr. Rutherford also reported a case of Decompensation of the Heart, showing the marked value of rest and digitalis in these cases.

Dr. G. Y. Graves, Bowling Green, reported a case of Procidentia Uteri treated by vaginal hysterectomy, which was followed by a temporary anuria.

On the regular program Dr. Sidney Burwell, Nashville, gave a very comprehensive talk on "The General Principles of the Diagnosis and Treatment of Heart Disease," which was discussed by Drs. Bell and Rutherford.

Following a most delightful luncheon, Dr. Walter Hume, Louisville, made some remarks on "Traumatic Surgery," stressing the marked increase in traumatic cases in recent years due particularly to automobile accidents, calling attention to the fact that on this account that a general practitioner in Kentucky, agricultural community, was seeing much more of the so-called "industrial surgery" in a community with practically no industry. He also emphasized the necessity for recognizing the presence of shock and the value of rest and heat, recalling the dictum so often used during the World War "treat them where they lie."

Dr. Milton A. Gilmore, Hopkinsville, read a paper on "The Problem of Local Medical Organization," discussing the value of medical organization to the public as well as to the profession. This paper was discussed by Drs. Howard, Blackburn, Bell and Byrne.

The Society adjourned to meet in Hopkinsville the middle of June.

JNO. H. BLACKBURN, Secretary

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**Daviess:** Resolution on the Cost of Medical Care.

WHEREAS, it has come to the attention of the Medical Profession throughout the United States, that a committee was appointed to determine the cost of Medical Care, and that after five years of deliberation and meditation, has presented both a majority and minority report.

AND WHEREAS, your committee after thorough investigation and study of both reports, wishes to go on record as opposing the majority report, for the following reasons:

1. That the abolition of private practice in this country, would invite a beaurocracy which would prove deadly and disastrous in its effect and create a state of Bolshevism.

2. The majority report whose purpose it is to abolish private practice, seems to us to be propaganda for socialism and public health officials, whose activities at present are leading toward the socialization of medicine.

3. We bleieve the majority report has presented this entire question in a distorted manner, that the evils of contract practice are wide spread and pernicious, that any method of furnishing medical care which degrades the medical profession through unfair competition or inadequate compensation, or which has a tendency to break down its ethical standards or furnish inferior medical service, should be condemned.

4. That we are of the opinion, that the majority report has shown nothing by experience, that would have a tendency to prove its theory as workable, or that it would not contain evils of its own which would be worse than those it is supposed to eliminate.

5. We believe that such economic problems as may arise from time to time, can at least be solved by an alert, but considerate, medical profession.

The load of charity work, which the medical profession has carried so long, should be a guarantee to the public of our understanding and sympathy.

We do object to the exploitation of our profession by lay organizations and by Utopian reformers in our profession, who have not experienced the vicissitudes of active practice.

Unanimously Adopted by the
DAVIESS COUNTY MEDICAL SOCIETY.

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**Franklin:** The Franklin County Medical Society met in regular session Thursday noon, April 13th, at the King's Daughters' Hospital with the following members present: Drs. Martin, Snyder, Ginn, Patterson, Stewart, Minish, Coleman, Coblin, Jackson and Youmans.

Following a delightful luncheon served by the Hospital, the meeting was called to order by the president, Dr. Jackson, and the usual line of business was entered into. Dr. Coleman reported on Schick Test that was given in the schools.

A motion was made by Dr. Minish, seconded by Dr. Snyder that the Secretary secure a ruling from the Workmen's Compensation Board relative to a circular letter sent out from the State Highway Commission regarding treatment of injured employees of the State Highway.

Guest speaker was Col. Robert Dixon, Secretary to the Workmen's Compensation Board, who gave a thorough and interesting explanation of the Workmen's Compensation Act with reference to the physician which was enjoyed by all present.

C. E. YOUMANS, Secretary.

## EYE AND EAR SECTION OF THE STATE SOCIETY

The Eye and Ear specialists of Kentucky held their annual meeting at the Irvin Cobb Hotel in Paducah on May 15. The meeting though of somewhat smaller attendance than usual, lacked none in enthusiasm and good fellowship. The guest speaker was Dr. Lee Wallace Dean of Washington University, St. Louis. His lucid and interesting discourse on various subjects pertaining to otolaryngology amply repaid one for the trip to Paducah. The eight papers presented by the members were of a high character and elicited animated discussion.

Between the morning and afternoon sessions the members were entertained at luncheon by the local ophthalmologists and otologists, after which a round table discussion was led by the guest of honor, Dr. L. W. Dean.

The evening session which followed the annual banquet, consisted of an address on "Mastoiditis" by Dr. Cowley of Berea, retiring president, and a discourse on "The Diet in Otolaryngology" by Dr. Dean.

The time and place of the next meeting will be determined later by the Executive Committee. A number of new members were elected.

Officers elected for the ensuing year were: S. B. Marks, Lexington, President; A. L. Bass, Louisville, Vice-President; Carlton Thomas, Lexington, Secretary; Walter Dean, Louisville, Treasurer.

Since the inception of the section on ophthalmology and oto-laryngology of the Kentucky State Medical Association there has been a growing interest in the transactions and a healthy growth in membership. The society would welcome the application to membership of any one in the state practicing our specialty.

ADOLPH O. PFINGST.

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**Jefferson:** The following is the program for the June meetings of the Jefferson County Medical Society:

**June 5th—Symposium on the Pancreas**

Physiological and Pathological Considerations of the Pancreas, A. J. Miller, M. D.

Surgical Aspects of the Pancreas, Irvin Abell, M. D.

Medical Aspects of the Pancreas, Virgil E. Simpson, M. D.

Discussion to be opened by Drs. E. S. Allen and Morris Flexner.

**June 19th—Essay**

Megalocolon with Especial Reference to Sympathectomy Treatment, Fred Rankin, M. D., Lexington.

Discussion to be opened by Drs. R. G. Spurling and Wm. J. Martin, Jr.

**Case Reports**

Cholelithiasis, Cholecystoduodenal Fistula, and Treitz Hernia, I. A. Arnold, M. D.

CHARLES M. EDELEN, Secretary,
I. T. FUGATE, President.

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# KENTUCKY MEDICAL JOURNAL

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Published Monthly by the Kentucky State Medical Association Under the Supervision of the Council

VOL. 31. No. 7 BOWLING GREEN, KY., JULY, 1933

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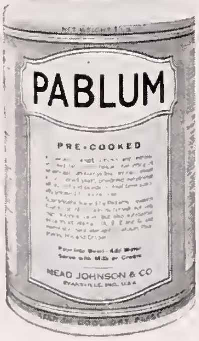

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# KENTUCKY MEDICAL JOURNAL

BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

**Published Under the Auspices of the Council**

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## MEDICAL STATE BOARD EXAMINATIONS

The number of books that come to the Editor's desk seem to be increasing and increasingly intricate and complicated. From time to time a real book comes along, edited by an expert, and one pauses to analyze it.

Such an one has been written by Harold Rypins, M. D., whose ten years' experience as Secretary of the New York State Board of Medical Examiners has especially qualified him to write understandingly of Medical State Board Examinations. This valuable publication has been made by the Lippincotts and it covers not only the details of examinations for medical licensure but it sets forth the philosophy of the subject in an attractive way that can be accepted by those who have learned to have confidence in Doctor Rypins.

This book will be of value not only to the prospective applicant for the State Board Examination but it will be of especial value to teachers in that it shows the current demands on the student as contrasted with the older forms of medical knowledge that are still too frequently taught. It would be really valuable for any physician. Perusal of its pages and searching questions would be a splendid guide for that postgraduate reading and thought that has always been pursued by the suc essful practitioner. From Doctor Rypins experience and industry medical literature has been enriched by a practical guide of great value and importance.

## HEALTH ADVERTISING

The medical and its allied scientific professions are justly proud of the advances which they have been able to bring in the health habits of the American people. They are also justly irritated at the outrageous exploitations of the public confidence by the class of advertisers in cheap publications, and particularly, over the air, in the specious claims for health promotion sandwiched in between fake blues and fake dialect comic tragedies.

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Our readers will have noticed that we have fewer advertising pages than for the past several years. The announcements of those firms which have continued to merit our approval will be found in the JOURNAL and our readers may feel perfect confidence in any advertisment which we have accepted.

## THE AMERICAN COLLEGE OF PHYSICIANS

The American College of Physicians will hold its Eighteenth Annual Clinical Session in Chicago, with headquarters at the Palmer House, April 16-20, 1934.

Announcement of these dates is made particularly with a view not only of apprising physicians generally of the meeting, but also to prevent conflicting dates with other societies that are now arranging their 1934 meetings.

Dr. George Morris Piersol, of Philadelphia, is President of the American College of Physicians, and will arrange the Program of General Sessions. Dr. James B. Herrick, Emeritus Professor of Medicine of Rush Medical College, Chicago, has been appointed General Chairman of local arrangements and will be in charge of the Program of Clinics. Mr. E. R. Loveland, Executive Secretary, 133-135 S. 36th Street, Philadelphia, Pa., is in charge of general and business arrangements, and may be addressed concerning any feature of the forthcoming Session.

## OFFICIAL ANNOUNCEMENTS

### KENTUCKY STATE MEDICAL ASSOCIATION COUNCIL MEETING

A meeting of the Council of the Kentucky State Medical Association was held on Thursday morning, 10:00 A. M., January 19, 1933, Pendennis Club, Louisville.

Charles A. Vance, M. D., Chairman, presided.

Present: Charles A. Vance, M. D., Lexington; W. M. Martin, M. D., Harlan; C. W. Shaw, M. D., Alexandria; R. H. McChord, M. D., Lebanon; W. K. Buttermore, M. D., Liggett; D. M. Griffith, M. D., Owenboro; V. A. Stilley, M. D., Benton; C. C. Howard, M. D., Glasgow; Virgil Kinnaird, M. D., Lancaster; J. I. Greenwell, M. D., New Haven; and the following from Louisville: Philip F. Barbour, M. D., Irvin Abell, M. D., W. E. Gardner, M. D., Virgil Simpson, M. D., L. H. South, M. D., P. E. Blackerby, M. D., A. T. McCormack, M. D.

A. T. McCormack: First, some consideration should be given to the report of The Committee on the Cost of Medical Care. This report is the livest thing before the profession today and presents certain matters to which I think we should give consideration.

As you will remember, I was invited to be a member of that committee in the beginning. I realized it was a fact-finding committee and felt it was a job for statisticians; so did not accept. I have been present however, at eight or ten of their meetings. I don't think, in all my life, I have ever seen anything done with a better spirit, or finer men working harder with a finer spirit and preconception of the work. It is important to remember that they worked on this report for five years. About two-fifths of all of the fact-finding on which the report is based was done by the American Medical Association itself. It is the biggest sociological survey ever undertaken in connection with the work of the medical profession. Very unfortunately, however, they did just as we too frequently do at our meetings; at their final meeting in New York they were practically unanimous, but they had made arrangements to leave at four o'clock in the afternoon and the three socialist members of the committee kept them from arriving at a unanimous conclusion. The recommendations they made are of comparatively little importance, to my mind. I don't think that anybody in the whole committee approved all of either report; and I think it is perfectly natural that they shouldn't, as it makes an entirely different matter where you live. The problems in each locality in different sections of the United States are different. What they are trying to do is write a textbook on medical service, from the pages of which can be secured various suggestions which ought to be considered seriatim instead of as a whole report.

In Kentucky I am very much in favor of considering this report as we do most things. I don't believe for a moment that it is practical or possible, under any circumstances, to have any sort of group medicine develop in Kentucky around a group plan that is to be supporteed partly by insurance and partly by the State. In other localities they may help, but in our State I can't see the possibility of any such development whatsoever. In the smaller places, where they can organize a single group, that would be the Medical Society, I can see the possibility of group practice. As soon as you begin to make it anything else than the Medical Society there would be competition and there could be no tax support in a single county in Kentucky. That whole plan, to my mind, is utterly impracticable as far as the State of Kentucky is concerned.

The important thing we have to confront as a profession is that we are opposed to the State practice of medicine in any way, shape or form, at any time, under any circumstances, as a principle. We are confronted at the same time by the fact that 73% of the patient-day service rendered and 85% of the hospital beds in the United States are in government owned or government controlled institutions and are paid for by the government. This includes insane asylums, tuberculosis sanatoria and such institutions as the University of Michigan, where they run the hospital for private and other patients. In West Virginia they have just finished, with the co-operation of the American College of Surgeons, a survey of the medical conditions in the state, in which they have made a very careful analysis of contract practice. There are about ninety hospitals in the State, sixty of which are contract hospitals. They are run in connection with mine contracts and "take-outs." There are all varieties of contract practice. They condemn particularly as impracticable and indefensible, the line of practice that has a "take-out" for medical service where the mine, or contract physician, receives a stipulated salary and the mine makes a profit from the "take-out." The other thing they condemn is something that we have in a few counties in Kentucky (Bell and McCreary), this is, where a physician has a contract for several mines and employs, at very small salaries, assistants who do most of the work. These assistants are often illegal or incompetent practitioners. That is one of the abuses that the American Medical Association itself is particularly anxious about.

From our viewpoint, there are two things that it seems to me we should do. We should say to the profession and the people of the State that we are opposed in Kentucky to any State contract of the practice of medicine; that we are opposed to any interference in the relationship of the physician and his patient—of any scheme of practice that prevents the free and individual choice of a physician. It seems to me that these are the essential things built on the tradition of American medicine that we should preserve. We should go farther and say that if any community, county or section is willing to adequately support a physician, we, as an organization, will see that one is provided. There is growing in the State a concentration of doctors in the cities. We have two hundred and fifty more physicians in the City of Louisville than we need. There are one hundred and seventy doctors in Lexington, which is more in proportion to the population than in any other city in the State. Many outlying districts, on the other hand, have nobody. This situation is very grave. I think we should undertake as a profession to find them and send a doctor to any district in need of one which is willing to assure him an adequate support.

Two of our hospitals in town have started a plan of insurance. You pay $9.00 a year for an agreement with the hospital to give you twenty-one days' hospitalization. That includes all routine hospital service for twenty-one days, and X-ray service at half price.

W. M. Martin: We have been able in Harlan County, where several of our mines have had cuts, to take care of whole families for $12.00 a year. The thing we are up against in general practice is that such a large percentage of our population, both in town and in the country, is not getting any medical service at all, or inadequate service at that.

D. M. Griffith: The medical profession carries the odium of the entire expense, in the eyes of the people, when, if left to medical fees alone the fees wouldn't be too great. Our profession is to blame to this extent and to this extent only—it seems to be the mental conception of the physician that when a patient is very ill or in need of an operation he should immediately be taken to a hospital. I took a man's eye out the other day; and did a mastoid the other day in the country, performing the operation in the patient's cabin, and I believe she is going to get well. The hospital nurse contributed her services and I contributed my services. Neither of them could afford to go to a hospital. The woman should have gone to a hospital, but she wasn't able to be moved. We have to stop this thing of taking a person to a hospital every time they get sick.

Philip F. Barbour: It is an easy job for the doctor to put the patient in a hospital and let the nurse do the work.

A. T. McCormack: The very character of our medical education is at the basis of the whole thing. We are sitting still and permitting medical education to be taken over by a group who never practiced medicine, who are all on salaries, who are interested in teaching hospitals and want to get every patient possible in a hospital. We are turning all of medical education over to full-time teachers in medical schools. In ten more years we are not going to have any teachers in medical schools except full-time teachers. The members of the full-time faculty, a considerable percentage of which are not doctors, are specialists. The student doesn't know anything and he naturally follows the leadership of the man who is most attractive in his teachings. I don't believe there is any excuse in the world for this.

At the same time this report came out, a report was gotten out that is of far greater importance in the basic developments for the future of medical service, "The Commission on Medical Education." This commission had made an examination of medical education over a five year period and arrived at the same conclusion as the report of The Committee on the Cost of Medical Care does; and there is nobody on it but doctors. They make the statement, which has been indorsed by four or five of the State Medical Associations, that the number of graduates in medicine should be reduced by 25% and all of the schools which haven't adequate financial incomes should immediately be discontinued to arrive at this end. I don't believe for a minute that that is true. I don't believe we have anywhere near enough adequate physicians to give adequate service.

C. C. Howard: I would make the suggestion, as I think every man here has read the book and all of the literature that has been sent out to him, that the Chairman ask each man from each district to express himself plainer.

First District—V. A. Stilley, Benton. Mr. Chairman, I am frank to say that I haven't had an opportunity to study this report as well as I would like to have done. I have read it in part and tried to read it through, but haven't had an opportunity to give it all the deliberation I should like to. As far as our district is concerned, I think we have enough physicians to take care of our people. The cause is largely due to hospitalization. We have educated our people to call for a lot of things they don't need. We carry too many of our people to the hospitals and if the general practitioner would equip himself as he should this would be unnecessary. I remember hearing Doctor Billings a number of years ago, when we had a Committee Meeting at Lexington in connection with their Medical Society Meeting, make the remark that 85% of the population could be cared for by the general practitioner, 5% by the surgeon and the others should be sent to hospitals. Group practice in our district has not been the custom. There are none in the First District. We have very good hospital facilities from which they are making money. I do think, however, that we are largely responsible for some of the cost because we have educated our people to demand things that are not absolutely necessary. We general practitioners are responsible for that because we don't train our people to take care of themselves. We are "kinda" lazy, as Doctor Barbour says, and let a lot of things be done that we don't want to do ourselves.

A. T. McCormack: They have an amount of fee-splitting in the First District in connection with a few of their hospitals that is very serious. The law prohibits it. It is an offense for which a license should be revoked, but it is the hardest thing in the world to get proof, although we know it is happening in the First District. Of course, it is absolutely inexcusable and necessarily increases the cost of medical care. That happens only where you have unqualified specialists who cannot secure consultations without having unqualified physicians bring them patients.

W. M. Martin: Doctor Stilley expresses it very well. We have some fee-splitting, too. We know about it, but we can't prove it.

Second District—D. M. Griffith, Owensboro: The profession in the Second District is very much opposed to the Majority Report. They are opposed unqualifiedly to State medicine. They believe it should be as it has been, the action of the individual in the pursuance of his profession; and I think anything we should announce to the profession along that line would be acceptable to them. I think we should make some announcement to the profession and the people. Our real trouble has come largely from the people. We have created the condition and the people take that viewpoint because of education as well as of the profession. I, personally, believe that we should do something about getting away from the medical profession bearing all of the odium of it. Back in the days when our fathers and grand fathers practiced medicine it was 100%. The whole cost was the doctor and his medicine. Later on, when you got to writing prescriptions to the druggist, that took off 10%. Now it is the doctors and the hospitals. Don't let's hospitalize every case because the patient is sick.

P. F. Barbour: Don't you think this is forced on the doctors more by the newspaper publicity than by the doctors themselve?

D. M. Griffith: I do.

W. M. Martin: That is like a great proportion of X-ray pictures. They have them made to protect themselves. Like Doctor Griffith says, I think the doctors are to blame for this thing themselves.

P. F. Barbour: On the other hand, the patient says, "Don't you think we had better have an X-ray picture made?" What I am getting at is that the people are to blame for these things because the people themselves say these things.

W. M. Martin: I do know it to be a fact in our town that some doctors do that.

A. T. McCormack: Take, for example, an analysis of the facts shown, the physician in private practice gets approximately 30%, nurses 5½%, public health 3%, which is largely our fault, medicine 18.2%, which is probably three times as much as medicines should cost. Savings in these regards should go to the support of the physician in private practice. We should direct our education toward the value of service as distinguished from the expenditure of money for non-essentials. When we can create the feeling of general confidence on the part of the public in our practitioners and educate them not to go to specialists until they are advised by their family physicians, we are beginning to get somewhere.

Third District—C. C. Howard, Glasgow. This report, I am sure, has been gotten out by men who are all competent, but they are bound to be men with a little twist of the mind. There are a good many men on the committee, however, whom you have to respect. I have read all of the report and all of the literature; there is too much literature following it. I have read this and discussed it with other men in the district, men who are practicing medicine in the district, to find out what they think of it. I can say for my district that 95% of the men are in favor of the Minority Report. I would say that 95% of our men are in favor of our not printing too much about the report. It is a fine thing for us to discuss it here and with other men and come to some conclusion, but sometimes we help a thing by discussing it publicly and through the papers. I know that when we discuss it at home the public comes in and discusses it with us. They come in and decide that we are not giving them the best of care. They say they haven't been getting enough for their groceries, clothing and tobacco. I have only two suggestions to make on this report. One that I want to emphasize is the point that where there is a community that really needs a doctor, we, as a profession, should make an effort to furnish them a competent man. We have an organization that keeps up with men who need locations. Each man should find out from the Secretary of his County Society where they are in need of a physician. I think it would be a good idea to have a form printed, stating the community in need of a physician will support one, have them sign this form and send it back to Doctor McCormack, and a physician will be supplied. In this way the difficulty could be overcome to a certain extent. There isn't as much need every time as you would gather from the public, but there is often a real need and if they will agree to support a physician we will see that they are given a real medical service.

Another thing, I have more respect for Doctor Barbour and the other men who taught me and the boys in school are not educated now as those men educated me. We are letting these new men get away from the profession. I am not as strong for this all-time professorship as I am for the all-time practitioner. I have thought a great deal along that line and I don't know whether or not the State Association has any say-so in that, but I think we should find out. I have a boy who comes down every summer; he is here in school. He has a different idea about it. He follows after his professors and if they happen to be men who are making a success in the practice of medicine it helps that boy wonderfully. As to the question of hospitals, I am sure in our case there isn't one-tenth of the people who are able to go to a hospital and pay the expenses incurred there and also pay their doctor. I will say to you that I don't find over one out of five who is able to pay me the bill after he is through paying the hospital. The truth of the matter is, I have been operating at the hospital and only one has paid the bill and they have all paid the hospital bill. In other words, the hospital hasn't reduced a thing; it is very expensive. The ordinary fellow pays $50.00, his family has to pay for some drugs, he has to stay in town and pay his board, and by the time he gets through he can't pay the doctor. I say, down home I don't see why we couldn't reduce hospital expenses and serve more people. Lots of people don't need to go to the hospital for general sickness. We are utterly to blame for that. We talk about it but we don't do much about it. We don't respect the family doctor's opinion as much as we use to. Of course, he isn't going to make as good a diagnostician as the man who has the laboratory work done, but we are not helping the practitioner enough and giving him enough respect. I believe any man who does surgery should have a general practitioner to look the patient over first. A man out in the country had a very severe throat. I told them I would just get everything ready and go out in the country and see this man's throat and mop it out and treat him; I wouldn't call anybody in. Drop the idea of having a specialist. Often a man is not able to pay for consultation and if you keep sending him around to a specialist that disturbs him and he doesn't know whether or not to come back to you. If it is necessary, have enough sense and honor about you to have a man in consultation. Another thing, I think we have as good a bunch of druggists as anybody. I suggest that the doctors shouldn't write as many prescriptions. I have written two or three in my time that have cost as much as two or three doctor's bills. It is very expensive for the patient. You know yourself, if we aren't careful we are going to be commercialized. That is one thing I am afraid of in this report. I am afraid that behind this report there is some big organization like an insurance company. I have been investigating this through a relative who is in business, and he thinks this is true. I am afraid such an organization behind it would destroy our profession and our pride in ourselves individually. I think if you, Doctor McCormack, could supply us a doctor when he is needed, that would be all right.

C. A. Vance: What about your own hosital?

C. C. Howard: Our hospital was built with the aid and assistance of the Commonwealth Fund. They have been very good to us. There are a lot of features in it that are mighty fine and a few that were somewhat objectionable at first, but we are boiling them down and they are improving as we go along. Being in New York City and us down here, they are a little far removed in its management. There are big men in charge who really operate it from New York. That is an objection; whether it is a serious one, I don't know. Time will tell.

A. T. McCormack: I understand that a certificate plan has been developed.

C. C. Howard: We are working on a plan but have had trouble in maintaining it.

We had a law, but we had to go out and see if it was constitutional. The profession tried to keep us from doing it. I believe the staff is really the biggest part of a hospital. You might have all kind of good business men on the hospital board, but the hospital finally rests upon the reputation of the men who practice medicine there. As I say, we tried out this thing to see whether or not our law was legal. That was a mistake; but the county had been paying on it and all at once the Board took a notion that they would make the county pay the full limit. We, as a profession, on the County Board of Health didn't recommend it. We recommended that the Fiscal Court pay a little of it. They decided they were going to get the maximum. That worried me a little but I didn't want to stand in the way. We said, "All right, we will agree to that; you go ahead and try it." We had to go through a process in our court and then to the Court of Appeals and lost it all. But the profession didn't have the management of that, it got out into the hands of smart business. We had to go to the people who used it and the county that paid for it and we were against a wall. They worked out a plan that they would get out a certificate which stated you would pay so much a month, or twice yearly, for your family, and if you used the hospital within five years the amount paid would be deducted from your bill; if not, it would be used for charity. It hasn't worked at all. They sold only about two hundred. The doctors subscribed more than anybody. They are giving their service and are giving one-third the amount that has been subscribed, as well as to the hospital. I don't know where that is going to get them. I have sort of washed my hands of it. I subscribed, got jaundice and went South, and let it alone.

Fourth District—J. I. Greenwell, New Haven: I don't believe that I have anything to say. I agree with Doctor Griffith that we are sending too many of our patients to the hospitals and the profession in the Fourth District is sending too many of their patients to the hospitals.

Fifth District—W. E. Gardner, Louisville: My first inclination was strongly in sympathy with the Minority Report. After more deliberation, however, I doubt that this body should take any official action in approving either of the reports. They are largely a matter of conclusions. Both are based on a world of data accumulated by technical subordinates and it would require months for us to study the matter thoroughly. These studies were instituted five years ago during the boom days when everybody was idealistic and when the heads of large corporations wanted to guard the health of their employees at the least possible expense. There are a lot of prominent and wealthy people in this movement who supported it, but they are far removed from the practitioner and much of it looks to me like a part of the spirit of technocracy, now in somewhat disrepute.

The published report is a nice thing for the physicians to have but they are going to have to work the problem out among themselves. I don't think it is necessary for State Medical Societies to outline the plan and say what the physicians should do. Both reports refer to group practice to be supported by either insurance or taxation. I should personally feel a hesitancy in having the Council give its approval to either of these reports. There is a lot of idealism in this thing and it is in keeping with a spirit of research in medicine, social and various fields of endeavor, only a small percentage of which is usually of real practical value. If, however, only one per cent of all research work done is of practical value, it should perhaps be encouraged. There are many people in our universities now studying sociology, looking out for the benefit of the human race and incidentally for themselves. All of us like to have some attention paid to what we are doing; we are all grown-up children. There are a lot of people who want to get on the front page of the newspapers and we have to discount a whole lot of that thing before we know where we really stand.

I think perhaps a lot of valuable information has been gathered in the Report of the Committee on the Cost of Medical Care, and as individual doctors we should study and discuss it; but if we as a body say we approve this or that part of it and get into the newspapers, we may only stir up a lot of unrest among the laity and defeat the whole purpose of the study which, in the beginning, had the approval of the American Medical Association. It would appear now, however, that the child has outgrown the parent, and demands more attention than was ever contemplated when it came into existence.

Sixth District—R. C. McChord, Lebanon: I think that the Majority Report is a juggle. The Minority Report is all right I don't think you can hold anything that would be just and right; we have to accept just what we can. We have to do something, but I think it has to be done through the organized medical profession, from the American Medical Association to State and down to the County.

Eight District—C. W. Shaw, Alexandria: I have hardly had sufficient time to look over the report. I think there are some few things in it that we should take up, but I believe we should go slow with quite a lot of it. It is not going to fit in with every county and it will not fit in every place. We have a committee in our Society that will probably report on it tonight. I am utterly opposed to State medicine and always have been. I believe in the personal contact of the profession and that in this half of the battle is won. Contract medicine never has been good practice, in my observation. I have seen quite a lot of lodge practice. It is dying out in our district to a certain extent. They usually have some low-grade man and after a short time call in somebody else. It is unsatisfactory all the way through.

I believe too many of the people who could be taken care of at home are going to the hospitals. We have a little hospital, which I think is the only hospital in the country that is controlled by physicians. We have had a hard time keeping it going, but it is practically controlled by the physicians of Campbell County. We are a little shy in regard to a laboratory and some minor needs. The doctors get along very nicely and we are able to keep it open.

ELEVENTH DISTRICT—H. K. BUTTERMORE, Liggett: I have read certain parts of that book and I feel like this committee has spent a lot of valuable time and has awfully good data. Of course, we doctors don't agree with all of it, but it has given us some good information which we should base some opinion on and retain our standing in the community. There is a lot that would help certain counties and towns that wouldn't help in the country as a whole. I live in Harlan County where we have a lot of contract practice around the mines. They pay the doctor a certain amount each month; there is a hospital service charge and funeral service charge. Without this I don't know what they would have done. I think there are certain parts of the report that are good, but I believe the medical profession as a whole is going to have to assume the leadership over the country. I believe we have been falling down and letting the laity take the leadership, and we have to regain that leadership.

P. F. BARBOUR: I think it might be of interest to us to take up the recommendations of these two commissions, item by item, and see if there is any agreement among ourselves on them. Personally, I think the commissions were started with the idea of furnishing proper medical care for the white-collar class. What is the answer? There is no answer to it. Take care of the poor people at Government expense and let the rich take care of themselves. There is nothing for the middle class. There is nothing in either report that helps out the man in medium circumstances. We think the Minority Report is the better; and what is in that? First, that the Government should furnish medical aid for the poor. Now, who is going to decide who are the poor? Who is going to pay the bill? Who is going to decide for the doctors? The doctors are immediately put in a class that they are going to work for an income and there is nothing in it for the poor people. I don't think that either of these recommendations hits the nail on the head at all. I would be in favor of taking the reports of these two commissions and discussing them item by item.

W. M. MARTIN, Presdent-elect: I don't believe that there is anything I can add. I know there are a great many doctors who are opposed to contract practice; there are a good many who are not. Those who have good contract practice are not and those who haven't don't agree. Having lived in a mining district for many years, I am sure that is the only solution for that district. One of the best coal operators in Harlan County said there were several cuts there which were very beneficial. The doctor's cut assured them that they would get a doctor. The time has come when these miners don't get in enough money to pay the doctor's cut, but they get the care just the same. Another beneficial cut they have is a burial fund. Miners are different from the average class of people. If they make ten dollars a day they spend it; if they make one dollar a day they live on it. If one person or a whole family dies they are all taken care of from this cut. A doctor who was giving good service was being paid $100 a month; he furnished all of the supplies, even drugs. If he hasn't the drugs he gives a prescription to the drug store and pays for it himself. One of the mining companies recently offered this doctor a salary of $500 a month to take care of these people in this camp, to furnish the necessary dressings, drugs and supplies and also take care of their compensation, which, of course, is in violation of the law. Doctor Lewis flatly refused. Now they have a Baptist preacher in there, preaching and taking care of the camp. The superintendent is building a mighty fine home, and I don't know whether he is getting the other end of the doctor's fee, but I do know that Doctor Lewis acted in an ethical way when he moved out.

We have some companies down there where they have no surgeon and I have been doing their work for a number of years. They are asking a cut to be paid by the men who very often have such little work they can't pay for these cuts. They had a tonsil clinic in the camp and took out fifty tonsils in one day. Just such things as that have gotten them in and they came to me to cut my fee. I have a contract with them for any surgery I may do and they wanted me to make a cut. I told them I would. These clinics have taken their money and I don't feel it will be unethical at all, for the time being, and with the understanding that they give me full control.

When it comes to the group practice of medicine, I think it could be handled in places like Lynch, but I am doubtful if we could do it in Harlan. I think it is a question that the doctors in each community will have to work out themselves. I don't think the doctors in Southeastern Kentucky can tell you doctors in Louisville how to practice and operate and vice versa. Any miner in Harlan County can get any doctor he can pay, but the law gives the coal operator, or any industry that employes so many men, the right to employ a doctor and pay for it. If the company fails to employ a doctor, the man may employ one and the company pay for it. Those things are fair.

I have read all of that report and I am like Doctor Barbour, there is a nice report, there is a lot to it, but they haven't made any solution of it. Some certain sections of the country may get together, but that is up to the doctors.

Another thing, in which I agree with Doctor Howard, is that we are getting too much talk; the laity think there is too much talk and that the doctors aren't doing enough for the people.

When it is all summed-up it is hard to please everybody. We have done our part and have preached against chiropractors and patent medicines and it hasn't done any good; they are going on just the same. Let the patient take his own course, and if he is really sick he will be back to you sooner or later. Like Doctor Barbour, I don't think we have gotten far with that report.

Irvin Abell: Mr. Chairman, I have read the report of the Committee on the Cost of Medical Care with a great deal of interest. There are many things in it which are admirable and with which I can agree. I think Doctor Martin is right in regard to the difficulties that have occurred in our own State relative to contract practice. Contract practice as carried out at present comes under three distinct heads:

1. Where the medical service is furnished by the employer.
2. Where the medical service is furnished by the group of employees.
3. Where the medical service is furnished by a corporation which collects from the individuals to be served and pays the doctors who give such service.

The distribution of medical service in industrial business has been complicated by two developments: first, the great increase in medical knowledge covering all fields; second, the tremendous development of industrial business with resultant injuries and disease common to particular lines of work. These two factors have so changed the practice of medicine from what it was 25 years ago that the older methods no longer serve to meet the present conditions. The objection made to contract practice as such will no longer hold. The American Medical Association Judicial Council has objected to it for years but still it is with us. As long as all of the money that is collected for contract practice is expended for the sick, thereby eliminating the commercial element, the underlying principle is one to which we can subscribe. I think that all of us feel that the dispensation of medical service through insurance or taxation is objectionable. I think further that all of us feel that the endorsement which the Minority Report gives to the care of all indigent patients by the Government is also objectionable. There is much of truth in what Doctor McCormack says about the number of patients who visit specialists without first consulting their family physicians. Since 1919 we have kept accurate records in our office of all patients who have applied for treatment. An analysis of these records shows that about 25 per cent of the patients coming to our office prove to be operative cases, 25 per cent need surgical advice of some character, and the remaining 50 per cent present conditions that should be cared for by their family physician.

I have been impressed by the method mentioned in the Committee's Report by which County Societies cared for the indigent members of the community. In my opinion this should be given further study and investigation; as it seems to offer a solution to one of the problems which at present is a source of unrest both to the profession and to the county authorities. Personally, I believe that the point emphasized by one or two speakers, namely, that the leadership and dispensation of the medical service must be taken by men who are most interested in it and who know most about it, is extremely important. This leadership cannot come from lay people, no matter how philanthropic they may be; it must of necessity come from those who know most of its ramifications, namely, the medical profession. Each State Association should have a committee to study problems as they exist today, so that the medical profession can secure the needed knowledge for intelligent leadership. I can see the wisdom of not endorsing either of the reports, Majority or Minority, as presented. If I had to take my choice between the two I would select the Minority Report, since it eliminates the disposition of service by groups with payment from funds secured by taxation and insurance. I agree with Doctor Barbour's suggestions that a discussion of each of the items which are controversial in character will be the best way of securing a concrete opinion upon their value.

D. M. Griffith: Moved that the following be adopted:

Resolved that the subject of the Report of the Committee on the Cost of Medical Care being considered at a meeting of the Council, and, in view of the fact that it is of so vital importance to the profession in general, affecting it from the foundation to the top, we believe the matter should be referred to a meeting of the House of Delegates at the coming session of the State Association this fall; and, that the Secretary be instructed to write to each county, requesting its delegates to inform themselves, by every possible means, so as to come prepared to consider the subject at a session of the House of Delegates designated for that purpose only. Seconded by Dr. Gardner.

Further Resolved that Doctors Abell and Barbour be appointed as a committee to select questions to be considered by the profession and these questions be submitted to the Secretary, who will send a letter to the members of the Council. Moved by Dr. V. A. Stilley, seconded by Dr. J. W. Stovall, that motion of Dr. Griffith be withdrawn and this committee be appointed. Motion unanimously carried.

A. T. McCormack: We expect each County Society to hold a session at which they will discuss this Report openly and the members come to the Annual Session fully informed. I think it is important for the members of the Council, in making their Councilor visits, to discuss the matter along the ideas we have expressed.

P. F. Barbour: I think we should send out to the County Societies something definite—a letter or questionnaire—stating that we want them to make up their minds definitely. I think they should pick out four or five distinct points about which everybody doesn't agree and have them answer these questions.

A. T. McCormack: In such a letter, I think the following four points should be stressed:

1. That the consensus of opinion in the profession appears to oppose any governmental interference in the private practice of medicine.

2. That the profession opposes any plan which interferes with free choice of a physician by the patient.

3. That we oppose any plan that interferes with the private and confidential relationship between physician and patient.

4. That we feel that the professional organization should be in a position to supply to any community that will assure adequate support of a physician, the necessary personnel they need for that community.

When the Drugless Practitioner Act was passed, we thought we would get some good in the law in the future if it were provided therein that any practitioner who desired to practice in limited practice, could be examined by an examining committee for that specialty—eye, ear, nose and throat, and obstetricians—have these committees. The State Board has ceased to undertake the enforcement of those Boards until the profession is ready to undertake this. It seems to me that this is one of the tremendously important things that is going to develop in the future. Most of the specialties are considering the matter of having examining committees in their profession. That is all right to a certain extent. There will be a certain number of men who will be qualified to take such examination; but, whether this is practically universal is a question in my mind. I believe if the obstetricians, pediatricians, surgeons and the other specialties in medicine had examining boards and it were required that before a man announce himself as definitely belonging to that specialty, he should take such practical examination as his Board requires, it would go a long way toward solving one of the most pressing problems and eliminate one of the worst abuses of medical practice we have today. A man came into my office last year and wanted me to find him a place where he could limit himself to the practice of eye, ear, nose and throat. We got him residence at Cincinnati for two years in the hospital to qualify for that specialty. I wrote him that we had it all fixed up and he wrote back that he didn't want anything of that type at all, that he wanted to qualify himself in two weeks. It seems to me if the profession approves it we should include this along with the other.

Irvin Abell: The American Medical Association has gone quite far on this subject. All of the specialties are coming in. The Council on Medical Education of the A. M. A. is taking that subject up and they are devoting so much of their time to it. I would suggest that since they are studying the thing and will report at the next meeting, we should wait.

A. T. McCormack: There is another question that I think is important enough for discussion. When the Report of this Committee came out, I realized that most of the states were going to get a good many copies, but in Kentucky it has been our custom to furnish them to the profession. I made arrangements to buy one thousand copies of it at a wholesale price and got up a letter to write to all of the members of the State Association and told them we were sending them a copy at $1.00 apiece. We hadn't sent it out, and when I went down to the Harrison County Medical meeting we discussed this thing and I told them we were going to get these reports and every man there wanted them, but John Scott moved that on account of the limited treasuries of every doctor in comparison to the State Association funds, that the State Association furnish them to all of the members. Then, I got out the letter and the Council voted to make the purchase. After talking to Doctors Abell and Gardner they rather felt that we should send out a bill to every doctor and have them pay a dollar and keep our reserves intact. That is a matter that we should discuss.

P. F. Barbour: A couple of years ago Dr. C. C. Howard suggested to the Commonwealth Fund—or at least the Commonwealth Fund requested me to come down to their hospital at Glasgow to make talks. We spent two days there making alternate talks and holding clinics. The men seemed to enjoy it immensely and I am wondering if something of the sort couldn't be put on in the State. Talks could be made by some surgeon and intern and let them talk about some particular phase of the work that they wish to talk about. Turn it over to two representative doctors and have them talk all day long. They should go out in a district and make a day of it. I have convinced the doctors here of the necessity for this and I am sure we can get a team to go from Louisville and Lexington. This was tried out at Hopkinsville several years ago and Doctor Haggard and some interns there came up for a day and did the same thing we did at Hazard. I think this would be a fine piece of educational work. We might try it out in two or three places and see if the men like it and if it is the thing to do. In North Carolina they have a team that goes around in the State and is paid by the State. A pediatrician goes around for two weeks and talks about some phase of the work. He is paid by the State and his expenses are paid by the State. The Crippled Children's Commission do the same thing for the day and their expenses are paid and they are paid an honorarium for the day. I am sure we could get men from Louisville to go and give a day of it at their own expense. If you think it would be worth while, I would be mighty glad to get in touch with several groups here in the city and have them do this. I don't suppose there is any money in this treasury to pay their expenses, but most of these men would be willing to go and pay their own expenses.

W. M. Martin: We practically have that down home. We had with us this summer, Doctors Horine, Virgil Simpson and J. B. Lukins.

P. F. Barbour: Your plan was that you had one paper from each man. My idea was to have one man talk all day long; have four or five papers and cover different phases of different diseases. It would be different from the ordinary county meeting. The subjects could be selected by the County Secretary. Have a mixture of postgraduate work and dry clinic.

W. M. Martin: I will assure you that our county will give you more attendance than Whitley, Laurel and Knox combined.

P. F. Barbour: Let a surgeon and medical man go out together and talk about both phases of the work and in this way they could cover three or four important diseases, answer questions, etc.

H. K. Buttermore: I move that we send a letter to the Secretaries of the County Medical Societies and let them outline the plan and say how many want to do it. Seconded by Dr. Kinnaird.

A. T. McCormack: We have filed before the Board now approximately twenty reports from the Federal Narcotic Bureau for the conviction of doctors for violation of the Narcotic Law. We have served notices on them to appear before the Board to show cause, if any they have, why their certificates to practice medicine in the Commonwealth of Kentucky shall not be revoked. I had a letter from the Narcotic Agent yesterday, giving a list of the doctors whose narcotic lisenses have been revoked. In addition to that we have notices of the revocation of the licenses to write liquor prescriptions of a number of doctors in the State last year.

I believe we should talk to the County Societies about the importance of those two laws. Of course, a good many of them are inadvertent violators of these laws. We had a doctor, here in town, who is indicted in the Federal Court. He pled guilty and said he had no defense. He stated, "I gave this morphine to most anybody who came in and wanted it. They were suffering. I gave them two or three morphine tablets to take along with them. I have absolutely no defense in the matter.'' We let him plead guilty before the Board and consented to the revocation of his certificate; held it pending his good behavior for one year; and sent it over to the Narcotic Bureau, hoping to get them to hold his case up. I believe we should be calling the attention of the the doctors to these conditions in the State.

W. M. Martin: There is one thing in the Narcotic Law that they are doing that is not right. It doesn't seem quite fair for them to send these undercover men around and have them go into a doctor's office and claim they are suffering with neuralgia, rheumatism or something. The doctor writes a prescription for morphine, or some other drug, and these men go right out and indict him.

A. T. McCormack: It is practically impossible to catch the men who are doing this commercially in any other way.

P. E. Blackerby: Let me say a word in justification of the Narcotic Bureau in taking such drastic steps. These narcotic raids are usually a last resort on the part of the agents. In Western Kentucky an old man has used 28,000 1/4-grain morphine tablets in twelve months. Just recently, since the Influenza epidemic has been raging over the State, we have had the agents from the Permit Division come down for us to justify them, or not, in issuing extra permits for whisky. I have always asked them this question: ''What are the records of these men?'' The answer is invariably that they have used up their books. In each case I have checked up to see if they had an epidemic in their practice and in not a single instance have I seen where any of those fellows have reported a communicable disease in his practice.

**Undulant Fever**—Undulant fever was discussed before the Academy of Medicine by Mr. Julie, who described two well differentiated types of septicemia due to the Bruce micro-organism: (1) a benign type, lasting not more than three years, healing without sequels, and very sensitive to various therapeutic agents, and (2) a poliomorphous resistant type, tending to become chronic, causing permanent infirmities and a mortality of from 6 to 8 per cent. The latter type is of a secondary infection. The benign type is an infection due solely to Alcaligence. It is therefore necessary, in undulant fever, not to use only aerobic cultures in the artin boillon, slightly alkalinized, but to implant the blood cultures also on various aerobic and anaerobic liquid and solid mediums.—Foreign Letters, London, Jour. A. M. A. (June 17) 1933.

## ORIGINAL ARTICLES

# RECENT ADVANCES IN SQUINT*

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I am quite happy to have the opportunity of discussing the subject of squint before a joint group of general practitioners and specialists in diseases of the eye. While there are special phases of the subject which might be dealt with in greater detail before an audience of ophthalmologists, the discussion in general can be simplified to the advantage of us all. Our modern conception of squint or ''cross-eye'' calls for mutual cooperation on the part of the family physician and specialist. It furthermore calls for a fairly comprehensive grasp of the fundamental facts, by the family physician in particular, in order that the specialist may see his cases early enough to effect real cures, providing he, too, possesses a clear understanding of what is needed to bring them about.

Progress in medicine has been so rapid during the last decade that it is quite appropriate to make an inventory or summary of approved facts. It is helpful to all of us, and is especially applicable to the problems of squint—a subject in which we have made marvelous strides. Instead of selecting a few of the more important phases which have undergone marked change, it seems to be more logical and will be more helpful to give you, as briefly as possible, a comprehensive outline of squint and its management as we see it today.

In childhood, the usual type of ''cross-eye'' which we see is convergent squint. My discussion, therefore, will be confined to this type of strabismus.

Etiology. From an etiologic standpoint, the dominating factor in squint is the influence of heredity. As a rule, the child inherits its refractive errors and the ability or inability of its power to fuse. In many instances, several members of the family are found to suffer from the same type of squint. This is direct heredity. More frequently, however, a high refractive error and weak or totally absent fusion are inherited family traits. Most characteristic is the presence of unequal refraction in the two eyes, the higher error occurring in the squinting eye. While this condition is not peculiar or limited to squint, when it is associated with weak fusion "cross-eyes" are apt to develop. In a child with normal fusion, unequal refractive errors will not cause squint. Normal fusion holds the eyes in alignment.

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*Read before the Jefferson County Medical Society, January 23, 1933.

The role of fright, convulsions, whooping cough, and other acute diseases of childhood, in precipitating squint is of interest. To the parents these factors are all important. Many cases of squint, it is true, make their appearance only after one of these incidents. They, however, only act as precipitating causes in the presence of weak fusion, or in cases of high refractive errors, or both.

SYMPTOMATOLOGY. Crossing of the eyes is the only symptom of squint which impresses the casual observer. In a more careful analysis, we find there are a number of other symptoms of importance, four, at least, of which take equal rank with deviation of the eye. The first of these is amblyopia or loss of central vision.

AMBLYOPIA. Until recently there was a rather general belief that the poor vision in the squinting eye is due to a congenital defect of the macula and, therefore, incurable. Inasmuch as most squinters of this type have high refractive errors, central vision usually is below normal in each eye. In the young child, this is difficult to determine. In children of three or four years, defective vision is easily demonstrated. Vision in the squinting eye is less acute than that of the fixing eye. With the appearance of the deviation, central vision ceases to operate because of the habit of suppression, which is quickly acquired. From non-use, therefore, acuity of vision becomes lowered. This visual loss can be likened to the placing of an arm in a sling or on a splint. The muscles become atrophied, the arm stiffened and wasted from non-use. In the first few years of life, i. e. in the formative period of childhood, this visual loss may develop within two months after squint appears.

When we come to discuss the treatment of squint, I will be able to show you that treatment, if begun before the end of the sixth year, can restore vision to normal with proper co-operation. If suitable treatment is not instituted at the proper time, low visual acuity will continue throughout life, and will be a barrier in obtaining perfect results in the matter of fusion, as well as a hindrance to the child in choosing from many vocations in life for which he or she may be well qualified in other respects. In proof of the acquired character of this amblyopia, I need but tell you that the low vision, as well as the squint, can readily be transferred to the good eye by measures to which I will refer. Although the deviation is the symptom which is disfiguring, it is easily corrected even in adult life. Lowered vision, if neglected, on the other hand, becomes a life sentence and an affliction which acts as a handicap, and interferes with normal activities of adult life. It is a symptom which demands prompt and energetic treatment in the early years of life.

DEFECTIVE FUSION. A second symptom of great moment is a weak fusion faculty. In normal individuals, the image before each eye is the same, and by a mental act, the two images are fused into one. This faculty is potentially present in all normal children at birth, and develops in strength as the child grows. In one of the rarer forms of "cross-eye," the fusion faculty is totally absent and cannot be developed. In the usual type with which we meet, the faculty is present but too weak to respond in the presence of high or unequal refractive errors. Fortunately, however, it can be aroused and stimulated by artificial means if the proper effort is made to restore it. This training is known as orthoptic treatment—a systematic effort to restore single binocular vision. As in amblyopia, this, too, responds to treatment better in early childhood than in adolescence or in adult life. It, however, can be trained even in adults if the faculty is at all present. In former years, no special effort was made to restore this function, and those who were fortunate enough to recover single binocular vision after operation or after the prescribing of correct glasses, did so only because nature is good to us in restoring function, if we meet conditions even in part. Today we make an honest effort to aid fusion and cures are not only assured but hastened.

MENTAL REACTIONS OF THE CHILD TO SQUINT. Comparatively little thought has been given to the far reaching mental effect which the deformity of squint has upon the child. I have been assured by many adults of the distress and anguish which squint caused them in early childhood, and of the influence which it exerted upon them throughout life. An observing mother can easily note that such children prefer to play by themselves rather than receive the thoughtless taunts of "cockie," "cockeyed," etc. They miss the joy of every child, namely the value of childhood contacts and friends. It does much more. The child soon becomes conscious of the fact that there is something different from other children in his make-up, and that this difference is not to his advantage. It marks the beginning of an inferiority complex to which adult victims of squint will bear witness. Just how far reaching the effects can be is not difficult to imagine. The crime of it all, when through neglect, ignorance or prejudice, a child is allowed to grow to manhood or womanhood with this easily correctible blemish and handicap, should furnish food for thought to all who have a hand in such neglect.

The Closed Doors of Opportunity. Unfortunately an inferior self evaluation is but a small part of the story. So long as the squint exists, it is an economic liability. "Cross-eyes" are not stepping stones to success. On the contrary, in the commercial world the only position open to one so disfigured is in the background with wage scale in proportion. I have operated upon many adults who requested operation to enable them to obtain employment. Fortunately the deformity is easily corrected for cosmetic purposes.

Of greater importance are the closed doors of opportunity for those whose eyes are straightened by operation or otherwise with vision neglected and fusion undeveloped. There are thousands of individuals in the world who fall into this group through improper treatment in childhood. Many men and women, otherwise fully qualified, must be excluded from occupations and vocations which call for binocular single and stereoscopic vision. Such individuals often follow avocations instead of vocations because of this handicap. True enough, they may reach high degrees of efficiency and success in their enforced careers, but how much more successful they might be if they were free to select the calling for which they are otherwise fitted!

I have stressed some of the serious consequences of squint with instances of which you are all familiar, and most of which might have been corrected by proper methods in childhood, to call attention to the changed order of things in our modern methods of treatment.

Treatment. There are four steps in treatment which must be closely followed to effect cures, and by cures I mean correction of the deviation, restoration of vision, and the development of single binocular vision with stereopsis.

Refraction. Naturally, if the refractive error is high, the first step in treatment is refraction or the fitting of glasses. There are certain facts in the fitting of glasses for squint with which the general man as well as the eye surgeon should be familiar. The first of these is, the age when glasses should be prescribed. If glasses are needed at all, they should be prescribed at the earliest possible moment the child will tolerate them. A good age, in an average case, is fifteen months. Parents may protest and some eye specialists may hesitate, but experience teaches us that the earlier glasses are worn, the greater good is accomplished. From my own experience I would say that glasses prescribed at this early age will save many operations, and will prevent some of the serious symptoms and complications to which reference was made in the earlier part of my paper. The oculist understands why restoration of equal vision in the two eyes may arrest the process of squint at its very beginning. So great is the influence of high refractive errors, and especially of unequal errors, that correction of the same will simplify all other treatment, and pave the way for complete recovery, and, in many instances, spontaneous correction of the squint. I wish to impress upon you that this step is only the beginning of the treatment and other steps must follow. Herein lies the difference between present day methods and those which we have discarded. It is, however, a fair statement to the parents to say, "it is possible that glasses prescribed now at this early age may be the means of avoiding an operation later on."

A second point to be stressed for the general man is the necessity for the use of atropine to properly measure the degree of error present. The cylinder which corrects the astigmatism is quite as important as the sphere. To prescribe glasses accurately and properly, drops are needed. In fact, the highest degree of medical skill is required to prescribe glasses in childhood. One cannot expect any help from them at the trial case. The method is an objective one and calls for accuracy.

Third, if the glasses are to be of any value in correcting the squint, a full and accurately prescribed correction is to be worn.

Finally, young children and those who are of school age need frequent checks to insure that the glasses are correct. Changes are frequent in childhood and glasses need adjustment to meet the changing conditions.

Prevention and Correction of Amblyopia. In very young children, we often must be content and mark time for a bit after glasses are prescribed. The other steps necessary to complete the cure with one exception may be delayed for a year or two without serious harm. Amblyopia develops in a few months after squint appears. It is easily prevented, but yields less readily to treatment after it appears. It is imperative, therefore, to institute measures to prevent visual loss even in the very young child. This is an important departure from our older ideas.

Two methods are available. Atropine may may be instilled into the fixing eye daily, or the good eye can be occluded by a bandage for several hours each day. Most of us find the atropine method inadequate, attended by some risk, and in the main much inferior in its results to the occlusion method. In my own practice I rarely use atropine for this purpose. As a preventive measure, occlusion of the fixing eye, for two or three hours daily, is a good guarantee that the squinting eye will not suffer from visual loss. The mother may find it a bit inconvenient at first, but the child soon becomes tolerant of the bandage, and little trouble is encountered after a few trials. This step in treatment is quite as important as refraction because amblyopia when well established may continue throughout life if it is not corrected in the first six years. It, therefore, is one of the serious barriers to a complete cure, and its persistence in adult life furnishes one of the serious complications which closes the doors to many vocations and occupations.

Not many years ago amblyopia in squint was regarded as a congenital condition. A careful study of cases has disclosed the fact that it is acquired in most instances through non-use. We call it amblyopia ex anopsia. It is brought about in the following manner. If the refractive error is higher in one eye than in the other, the eye of better vision will fix and the image of the other eye will fail to register an impression. If the vision is about the same in each eye, the *dominant* eye will fix and the other one, similarly to the first instance, will fail to register. If fusion is defective, the weak eye will begin to turn in. Suppression now becomes all the more necessary to avoid the inconvenience of double images. Suppression is easily acquired in childhood, during the formative period, i. e., before the seventh year. If acquired in childhood, it becomes a life habit. It cannot be developed to any extent in adult life. With constant suppression, central vision promptly falls even to low degrees.

A characteristic of amblyopia thus acquired, not too well known even by eye specialists, is the ability of the surgeon to transfer the squint as well as the amblyopia from one eye to the other. During the course of treatment, I have frequently made this transfer. It can only be be done in the first six years of a child's life.

When amblyopia is established, corrective treatment must be instituted promptly and pushed most vigorously during the formative period of childhood. Occlusion of the fixing eye should now be practiced for from three to six hours daily, and in some instances for longer periods. The success of the method depends upon the occupation of the child during the periods of occlusion. Kindergarten occupations will suffice for young children, such as drawing, painting, cutting out of pictures, stringing of beads, sewing, etc. Older children may add their school tasks to these simple occupations. In fact, I find the best results are obtained by calling in the aid of the teacher and have the patch worn during school hours. My interest has been centered on this problem for many years, and I find results are in direct proportion to the co-operation obtained from the parents and from the child. Almost all cases can be corrected and vision can be restored, but discipline must be enforced. The parent's enthusiasm should be encouraged, and the interest of the child needs constant stimulation. For the encouragement of those who are a bit skeptical as to the results, or who become discouraged in their efforts, let me say that nothing has given me more gratification than the results which I have been able to obtain in the management of this troublesome phase of squint.

You will naturally be interested to know how much time is required to restore vision in an amblyopic eye. With proper co-operation, vision of 6-15 or 6-22 can be corrected to 6-5 in three months. As a rule, there are many remissions in an average case, and valuable time is lost. Each year after seven makes the work increasingly difficult, but I have restored vision in many cases of from fifteen to twenty years. If vision can be improved to 6-9, fusion may be restored and fairly good single binocular vision may be obtained.

ORTHOPTIC TRAINING. In natural order, training of the fusion faculty becomes the third step in systematic treatment. Comparatively little can be done in this matter before the child is three and a half to four years of age. I might spend much profitable time with the specialists in discussing this phase of treatment, but it would be tiring to the general man. What I am endeavoring to do is to present a so-called bird's-eye view of the necessary steps in the management of these cases. I must, therefore, be a bit sketchy and brief in presenting the essentials of orthoptic training.

As soon as possible, the state of the fusion faculty should be determined. We should be able to say that fusion is normal, weak, or totally absent. In the latter instance, the squint will probably, but not necessarily, be one of an alternating type. Such cases are rare and in them only cosmetic results can be obtained. The eyes can be straightened, but fusion cannot be awakened.

There are two methods at our disposal to investigate the state of fusion. The amblyoscope, which can be adjusted to the angle of squint, has been in use for many years. It is satisfactory, but a bit tedious. More recently an instrument, known as a synoptophore or synoptoscope designed by Maddox, has proven to be more versatile and more readily operated than the amblyoscope. Experience has taught me that fusion, if present at all, can be developed later in life. Furthermore, after operation one can use an ordinary stereoscope, which is inexpensive and easily obtainable even for the poor. The child responds more readily, and all in all, if an operation is indicated, in my judgment orthoptic training can be postponed in such cases until after operative measures have been practiced.

If operation is not indicated, training of the fusion faculty should follow as soon as the child will co-operate. One can begin safely at four years of age. Some will naturally ask, why is it necessary to train fusion after the eyes are straight? To the casual or untrained eye, the eyes may seem to be straight, but single binocular vision may not be present. Suppression may continue after the eyes are straight. The refined tests at our disposal will determine this and a cure is not complete until single binocular vision is restored. Orthoptic training, therefore, should be practiced until the eyes functionate as one. For this work we depend upon the stereoscope, aided by the synoptophore and stabilizing units which are now beginning to be known by the profession. It is the home treatment with the stereoscope which is of the greatest value.

In addition to the early use of the amblyoscope and synoptophore to classify the fusion faculty, and the regular training with the stereoscope to restore stereoscopic vision, there is a third phase of orthoptic training to which I should refer. After operation there is urgent need, first, for stimulating measures to break up adhesions and render the muscles more pliable and responsive; and second, the stereoscope again is necessarily brought into active use to normalize single binocular vision. In other words, our work as specialists does not cease after operation. A month or two of training after surgery may mean the difference between good cosmetic results and real cures which we all hope to accomplish.

Operative Treatment. If you will bear in mind that orthoptic training should follow surgery or be continued after operation, the last step in the treatment is that of surgery. If the foregoing methods of treatment are practiced, at least fifty per cent of cases will escape operation. In fact, I predict that in the future, when systematic training is more widely practiced, the need for surgery will be reduced at least fifty per cent. This prediction is based on my personal experience in the management of squint, and I see no reason why it should not be the experience of all.

Notwithstanding the most orthodox treatment, a number of cases will come to operation. The questions naturally arise, when shall we operate and what type of operations shall we perform? All treatment for squint should be given during the formative period of childhood, i. e., before the child is seven years of age. It requires no stretch of the imagination to understand the wisdom of this advice. I could give you concrete evidence in support of the claim, but believe as medical men you will grant this premise without further evidence which would take up unnecessary time. I need but call your attention to the condition of many adults of our generation who suffered from squint in childhood and were treated by our older and I hope now obsolete methods, and ask you to contrast their results with the finished product which we are able to turn out today by more systematic work. In many of these adult cases, the eyes are cosmetically straight, but what about their central vision, their single binocular vision, and their ability to compete with those who have stereoscopic vision?

The time for surgery falls within this same early period. The best age for surgery is between the third and fourth years. An experienced surgeon can determine in six months or a year whether the measures as outlined will eventually restore the eyes to parallelism or surgery will be necessary. If the latter is indicated, early correction of the squint by operative measures will hasten and shorten the convalescent period. It particularly shortens the period of orthoptic training. It corrects the deformity at an age when natural forces can aid the child to recover his normal balance and lose his disinclination to mingle with other children. It is the correct time to operate.

To the men in general practice who are present tonight, I wish to make a direct appeal to co-operate with your eye specialists by guiding your little squint patients into proper channels when they are quite young, in order that they may receive proper treatment. "Giving the child a chance to grow out of his squint" is a slogan of the past. It is fatal insofar as vision is concerned. Let your specialist decide the problem whether he has a chance of recovering without treatment. At the same time, may I appeal to those of you who are eye specialists, who may be following what most of us were taught, namely to operate between the ages of eight and twelve, to operate as soon after refraction and training for amblyopia, as pay for these cuts. They had a tonsil ing for the middle class. There is nothing you can satisfy yourselves that operations are necessary. You will not be disappointed in your results, and your little patients will be the gainers.

Second, what type of operation shall be done? The general practitioner, I believe, should have some knowledge of this phase of the work, as well as of the general management. In the first place, it is of paramount importance to state that tenotomies which were so freely practiced in former years are no longer regarded as good surgery. The reasons for this belief are, first, the danger of creating a paralytic form of divergent squint because of failure of the muscle to reattach itself to the sclera. In the second place, we now set out to bring about real cures in which both eyes must share and after a tenotomy, the patient will be unable to converge in near work, and an artificial weakness of convergence is created. This condition will unfit the patient for work at the near point. With our improved methods of reattaching the tendon to the sclera at a fixed point, there are no reasonable excuses for any surgeon today to practice tenotomies which are not properly reattached. Although there are a few men who continue to practice this operation even in this day of progress, the profession as a whole has abandoned it for better types of operations.

Because of the thinned out, stretched, and flabby condition of the external rectus muscle, the modern surgeon plans first to shorten this muscle and in addition, to attach it further forward so as to give it a better purchase on the eyeball. If the gain is not sufficient to correct the squint, the internus on the same eye can be set back, in order to reduce its power and pull. A better alternate in some cases, is to shorten the externus on the other eye two weeks after the first operation, but not at the same time. It is unwise to operate on both eyes at the same time. The surgeon will appreciate the reasons for this caution. Each case becomes a law unto itself, and the discriminating surgeon will exercise his best judgment in each individual case.

In young children with wide deviations, it seems best to accomplish maximum results on one eye, and any residual squint can be more carefully corrected later on by a supplementary operation. In many instances, a residual deviation of fifteen degrees will yield readily to active orthoptic training. At all events, a remaining squint of seven or eight degrees which fails to respond to suitable training should finally be corrected by a subsequent operation.

I have outlined the surgical steps briefly, in order to give the general practitioner a better knowledge of the needs of a case, and in order that he may be in a better position to advise the family and co-operate with the surgeon.

Prognosis in Squint. You will naturally ask what is the outlook for real cures in squint? There are few if any cases of concomitant squint which cannot be straightened at any period of life. You can assure your patients that they are really taking no risk of injury to their sight, and that operative measures when properly executed will straighten their eyes.

If the measures which I have advised are carefully followed, at least fifty per cent of cases will recover full vision in the poor eye, and single binocular vision will develop without the need of surgery. In fact, I believe the percentage of recoveries will be much higher. Operation will complete the cure in the other cases. The results will naturally depend, first upon the full co-operation of the family physician in advising prompt treatment as soon as squint becomes fixed and permanent. Second, maximum results can only be obtained with the full co-operation of the family and of the patient, when the child is old enough to assist. Finally, the eye surgeon or specialist owes it to his patient to study the newer methods of treatment so as to be able to guide his little patient step by step to a full recovery.

The real secret of success in these cases lies, first, in treatment before the child is of school age, the formative period of childhood; and second, in the care which is exercised in following a systematic plan of treatment. The program calls for enthusiasm, patience, and skill.

## DISCUSSION

**Will Pryor:** I have always been a disciple of the school of Jameson, which believes that it is physiologically sounder to operate on the stronger muscle than to cut the weaker muscle; consequently, I have preferred recession of the internus rather than advancement of the externus, although I have occasionally done the latter operation on the internal rectus in cases of divergent squint.

I would like to know Dr. Peter's reaction to the Jameson method or to any modification of it that he may have to suggest.

**N. D. Abell:** I disagree with the essayist concerning the advisability of operating and putting glasses on these children at so early an age as eighteen months. The eye is not fully developed until the child is seven to nine years old, and I think it is a sad mistake to operate and put glasses on eyes until the child is ready to start to school.

I believe I am considered to be somewhat of a crank in one respect, in that I do not believe operation upon the muscles of the eye should be undertaken until we have first exhausted every possible means of straightening the eyes without operation. I believe it usually can be done. I was cross-eyed myself and straightened my own eyes, and whenever we learn that, in many cases, by truing up and balancing the muscles and securing proper refraction and frame fitting we can often produce the most gratifying results, we will then do less operating upon the eyes than ever before.

**Chas. K. Beck:** I do not agree with Dr. Abell. Like the essayist I think operation should be done as early as possible, and certainly before the child reaches school age. When we have waited that long we have, in the majority of cases, lost our best opportunity. These children do not outgrow their squint. It is true they are born hyperopic and that is usually taken care of by the time they are two or three years old. If they have developed squint by that time, we had better get busy. I do not see the wisdom of delaying operation after we have found that other measures such as glasses, orthoptic training, etc., is not producing results. Something should be done before the child acquires the inferiority complex mentioned by the essayist, and the earlier the better.

**Joseph J. Wynn:** The essayist made the statement that these patients should be considered cured when their eyes are straight and their vision good with glasses on. Another distinguished guest who read a paper on this subject before the Louisville Eye and Ear Society some time ago, said that he did not consider them cured unless the eyes were straight without glasses. I think Dr. Peter's definition of a cure is the better one. We must take into consideration the fact that these patients always need glasses which in themselves correct the squint to a certain degree; therefore, when the eyes are sraight with glasses on the patient may be said to be cured.

**M. C. Baker:** I was glad to hear Dr. Peter's emphatic ideas regarding tenotomy. We have all been more or less guilty of doing too many tenotomies and the views Dr. Peter has expressed tonight will strengthen our efforts to minimize the practice.

I think Dr. Peter has been very fortunate in getting so many of his patients at such tender ages. My own experience has been that many of these cases are not seen until they are four or five years old, and he has certainly been fortunate in getting them as early as ten, twelve and fifteen months old. However, I think the idea of puting glasses on them at that age is perfectly sound; in fact I have heard some men say that they put glasses on at the age of six or eight months, but I think that is going a little too far. In one or two cases I have put glasses on at the age of twenty-two months.

I would like for Dr. Peter, in closing the discussion to tell us his method of occluding the fixing eye. I imagine he uses some sort of a bandage and, if so, is it a true bandage or just a patch over the glasses?

**Albert E. Leggett:** I have certainly enjoyed hearing this paper, which is on a subject that is always timely and appropriate, especially until the medical profession as well as the laity become fully cognizant of what may be accomplished in these cases when they are seen early enough.

As to outgrowing squint, or growing out of it, I think that is a mistaken idea. True, a small percentage of these patients will develop parallelism by the time they reach puberty, but that does not obviate the fact that the eye is permanently amblyopic which, by that time, there is no hope of correcting. The earlier we can get these patients the better, and if thorough, painstaking treatment does not produce results, then the only thing left is surgical procedure and the longer they run, the harder it will be to overcome the trouble. It is true that in many cases squint can be overcome by corrective measures. However, we can usually tell what is going to happen in these cases by the end of six months.

I do not know of anything that is more essential in the treatment of these children than the understanding and co-operation of the parents, and this can be secured in most instances if we will take the time and patience to explain to them just what we are trying to accomplish.

One of the happiest periods of my life was that spent in Philadelphia in attendance at the institution with which Dr. Peter is connected and where it was my privilege to come into daily contact with him, and I am certainly glad of the opportunity to renew my acquaintance with him.

**F. W. Pirkey:** I have certainly enjoyed hearing this excellent paper and discussion; there is very little to be added on the subject.

It has been my experience, in prescribing glasses for children from the age of twelve months up, that there are only two difficulties ordinarily encountered. First, getting the patient young enough and, second, overcoming the parents' objections. Once the child gets in the habit of wearing the glasses there is no further trouble, because it is uncomfortable without them.

**Walter Dean:** In these days of economic distress it is not only pardonable but fashionable to talk about a job and about money. Straight eyes are necessary in business. Cross eyes tend to pull a man down to the lower levels of employment. This is unfortunate as labor destroys a great many eyes and a cross eyed man might have the poor luck to lose his good eye. We know that a cross eye seldom has normal vision and if untreated may become practically blind. A laborer with an obviously blind or amblyopic eye finds it difficult or impossible to get a job in normal times because the compensation insurance law in this state compels payment of about six thousand dollars for the traumatic loss of the second eye, irrespective of how the sight in the first eye was lost. This is on the basis that he is worse off than if dead. There are not just a few cross eyed people, there are a lot of them. It is not solving the problem to do cosmetic operations on "blind-from-disuse" adults. The time to start is in early infancy and the goal should be to develop perfect function as well as parallelism. I remember Mr. Claude Worth of London complaining that his success in developing and straightening his children's eyes was hampered by the stupidity and indifference of nurse maids.

In Kentucky, mothers take time to raise their children and have the inclination to co-operate with our profession. This is evidenced by the great number of children who have their teeth straightened over a period of several years at an expense of several hundred dollars. That proper eye treatment is not more often instituted must be the fault of the medical profession. It is imperative that cross eyed children be got under management before they are two years old. The school age is much too late. Unless the family doctor refers these children to the eye doctor at an early age wasted eyes and wasted lives will continue to result.

**L. C. Peter,** (in closing): I appreciate the free discussion of my paper very much indeed. It always is a satisfaction to have some one disagree with me, as Dr. Abell has so frankly done in his discussion. However, that early operation is advisable in these cases is the conclusion that has been reached by most authorities. Waiting until the child is seven to nine years old is fatal in most cases. During these years, the child is subject to the jeers and epithets of his playmates, and an inferiority complex is acquired that is very difficult to overcome. I cannot concede that there is any harm in early operation. I have done many of them, and I feel that it is the time to operate. Why not try it and see what results you get? If you have never operated at an early age, you may be surprised by the results.

My reaction to anything that Dr. Jameson says is good; his work ranks with that of the most constructive men in the country. His recession suture is very good, and while he was developing it, I was developing my own, which I have been using probably as long as Dr. Jameson has used his. There are, however, one or two objections to his technique that I would offer. First, I believe we should conserve every bit of muscle that it is possible to save. In Dr. Jameson's method, when the muscle clamp is properly used, a certain part of the muscle is damaged; in other words, if the clamp is not put on tightly enough, it will not hold, and if it is put on tightly enough to hold, it will damage a portion of the muscle. Second, I use the suture material advocated by Dr. Jameson (No. 00 catgut) only in very young children, because it obviates the necessity of removing the sutures, but in older children I prefer No. 1 twisted silk. The opening one must make in the sclera in order to pull the catgut through is so large that the needle will perforate much farther than one wants it to. The use of No. 1 twisted silk permits the use of a much finer needle than the Jameson needle, thus making a smaller opening in the sclera than is possible when catgut is used.

I will demonstrate upon the blackboard and briefly describe the operation which I have been using:

A vertical conjunctival incision is made well back of the muscle attachment. After the muscle is lifted on the hook, a number 1 silk suture, armed with two needles, is introduced by a whip stitch along the upper and lower borders of the muscle, immmediately back of the hook. The muscle is cut. The scleral bites are accurately placed at the selected distance back of the stump, these bites being separated at least six millimeters to spread the muscle. A second bite is taken through the stump. Both needles are brought out through the anterior conjunctival flap. Sutures are drawn taut and tied with a single knot and a loop. The conjunctival wound is closed by a running suture.

I worked out this operation, and have been using it for a number of years, and in my hands the results have been quite satisfactory. I would suggest, however, it is best not to attempt to remove the silk sutures for at least a week after the operation. Because of the whip stitch, there may be some difficulty in its removal. If it is left in place for a week, a fistulous track will have formed along the silk, and the suture will come out without any trouble. I prefer catgut in very young children because it is not necessary to use chloroform in order to take out the sutures as when silk is used; but in older children I prefer the silk. More refined work can be done with it.

A question has been asked concerning my reaction to operating upon the internal rectus rather than the external rectus muscle. Some time ago, Dr. Jameson, in discussing this question, took the position that the recession operation was the operation of choice. However, in an excellent paper read before the American Ophthalmological Society during the past year, he definitely states that, in his opinion, the recession operation should be used whenever the internal rectus is too strong or spastic, but concedes that in many instances it is better to strengthen the weaker muscle by a resection or advancement. Now, that is my own opinion. The external rectus is thin, the capsule is thin, and the conjunctiva is thin, and it is the muscle that needs help. It is infinitely more constructive to do an advancement operation than to do a recession, unless it is indicated to supplement the ground gained by an advancement, or to overcome a contracture. The best result we can get from a recession operation or a tenotomy, if you prefer it, is about eleven degrees; if a greater gain is obtained, one will be very lucky if the patient does not develop a divergent squint. Infinitely more can be obtained from the advancement operation, particularly if it be supplementary by a recession suture. We simply transpose the positions of the muscles of the eye. Therefore, I think the advancement operation is the most constructive, and I would recommend it to you, with the recession operation as a supplementary measure. If the squint is of long standing, and the internal rectus is in a state of contracture or organic shortening, the first step should be a recession suture, and then the advancement becomes supplementary, because until we have overcome the spastic condition of the internus, we will not get proper results.

I hope I have made myself clear. I have done a good many tuckings, but have never been as well satisfied with them as with the advancement operation. A tucking is easier to do, but an advancement is a sound surgical procedure. The cosmetic results are better; there is no slipping; and the end results are exactly what they are when the patient leaves the operating table, provided one does not try to accomplish too much shortening. Fifteen or sixteen degrees is usually obtained with an advancement, which is about five degrees more than by a recession operation.

The O'Conner cinch operation deserves more consideration than it usually receives, probably because of the violent reaction which follows. I use it only for divergent squint in which there is no danger of an overcorrection. The objections to it are, first, the violent reaction which follows; and, second, the fact that the dermol must be left in for twenty-four days, during which time the eye should be uncovered to prevent the formation of adhesions. I would not recommend this operation in convergent squint because of the violent reaction.

That Dr. Baker does not see these patients as early as I do might be explained by the fact that I have been defending this line of procedure for a good many years, and it has become generally known that I favor early operation. Therefore, I see a great many early cases. I think the profession in Louisville, as elsewhere, should wage a campaign of propaganda among general practitioners, social workers, nurses, etc. Until this is done and their interest aroused, you are going to continue to see these patients too late. Again, as pointed out by Dr. Leggett, one must get the confidence and co-operation of the parents, and when this is done, there will be no difficulty in carrying out your program. Fusion in infants begins to develop at about the sixth week, is fairly well established by the time the child is a year old. It should be complete at the end of the sixth year. It is during this period that we must get these patients in order to accomplish the greater amount of good.

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# BIRTH INJURIES*

Henry M. Rubel, M. D.

Louisville.

In presenting a few case reports this evening, I am limiting myself to injuries which the child sustains as the result of the efforts expended by the obstetrician in extracting it from the mother's pelvis. No mention will be made of any injuries sustained to the birth canal, such as, injuries to the vulval outlet, vagina, cervix, rupture of the uterus, perforation of the uterus, etc. Factors which influence the normal delivery of the child must be taken into consideration when such injuries are up for discussion.

Contracted pelvis, breech presentations, abnormal presentations, multiple pregnancies, post-mature children, fibroids, hydrocephalus, etc., are factors which have to be met with in some of our deliveries,and naturally, just add so many more difficulties with the final outcome of such cases. The type of delivery adds additional responsibility to the accoucher as well.

In breech extractions many injuries have been caused by the simple act of pulling. Soft structures may be injured. If great force has been used, the spinal cord will be torn and the vertebral column injured. In bringing down a foot and making traction on it, we may separate the lower epiphysis of the femur from the shaft. I have even seen a fracture of the upper third of the shaft caused by this manoeuvre when a child weighing less than six pounds was extracted. Fracture of the clavicle is quite common and has been increased by the popularization of delivery by version. Other common fractures are those of the humerus, tibia, and femur.

The anxiety experienced by the physician when the head becomes held up leads to additional trauma, and at times, foetal death. Here, injury to the brachial plexus may cause paralysis lasting for days, weeks, or years. Usually, this paralysis shows a progressive improvement. A dislocation or a fracture of the jaw may be sustained, also, in this type of delivery.

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*Read before the Jefferson County Medical Society.

Going over the records of our deliveries in the City Hospital, I have selected a few cases which will help elucidate some of the previous facts which I have tried to bring out.

L. G.: Home delivery. In labor three hours. Position: R. O. P. Fully dilated. A version was resorted to and resulted in the delivery of a normal sized child. Upon examination the right femur was found to be fractured. A cast was applied and the baby was dismissed in good condition, and was kept under hospital observation for several months afterward.

L. L.: Multipara. In labor two hours and fifty minutes. Position: L. O. A. Spontaneous delivery. This child showed an Erb's or Duchenne's paralysis of one arm. This usually results from a difficult delivery but may occur after an easy one.

Paralysis of the deltoid, infraspinatus, and the flexor muscles of the forearm cause the arm to fall close to the side of the body, and to rotate inwardly, the forearm becoming extended upon the arm. This, according to Erb, could be due only to a lesion of the fifth and sixth roots of the branchial plexus. The motility of the fingers is usually retained. This child was referred to the Pediatric Department for further treatment. The child's condition was marked "fair" on dismissal.

The prognosis is usually fair, many of the children recovering, although occasionally the arm may remain paralysed. A competent orthopedic surgeon usually accomplishes more rapid improvement in these cases than when just "left to nature." I am under the impression that a nerve transplantation operation to the affected muscle, or muscles, has been followed by marked improvement of the crippled muscle. So far, in my own practice, I have had one case which caused me much apprehension until a complete recovery was effected in six or eight years.

K. P. Para I. Prolonged first-stage—forty hours. Position: R. O. P. Midforceps application made with rotation. These were removed and a Kielland forceps applied and head finally extracted. A large cephalohematoma over right parietal area. Dismissed—condition improved.

M. P. Multipara. Pelvis, moderately contracted. Long first stage labor, 16 hours. Prolonged second stage. Caudal block anesthesia, 25 c. c. of a 1% Novocaine. Low forceps application. Medio-lateral episiotomy made. Child sustained a facial paralysis of the right side which had almost cleared up upon her dismissal from the hospital.

M. W. Spontaneous L. O. A. Fifteen hours of labor. Child born with a congenital atrophy of right arm and hand.

I wish to add a word of caution in regard to the increasing tendency toward operative obstetrics in those who are unaccustomed to the usual methods employed where danger lurks. A version, properly performed, is easily accomplished, provided one knows the exact steps and their proper sequence. A breech extraction may be simple or may become progressively worse. A seemingly easy midforceps application to a woman who has been in labor for many hours may finally be rewarded by the delivery of a large child with a facial paralysis, who shows evidence of intercranial hemorrhage, and after days of heroic treatment, finally succumbs. Gentleness, in operative procedure, will make far fewer birth injuries. Roughness, haste, or anxiety in the performance of a breech extraction, or a version, or a forceps operation will only bring injuries to the child which, if not fatal, will cause the operator many unhappy hours.

## DISCUSSION

**Edward Speidel:** Perhaps the most frequent source of injury to newborn babies arises from undue haste in delivering breech presentations. Haste is not necessary at any stage of a breech presentation. It is not necessary in the delivery of the legs and trunk up to the shoulders, because there is no pressure upon nor compression of the cord; hence, circulation is not interfered with. Consequently there is no excuse for a fractured femur or anything of that kind. If you are delivering a breech presentation in a primipara and the space is too small, a lateral episiotomy will afford additional room and make it easily possible to bring down the legs without injury.

Delivery of the shoulders can be accomplished very readily by simply drawing them down far enough — until the axilla is visible. If you attempt delivery before this, you reach too high and in bending down the arm you are apt to fracture one of the bones in the arm.

I think the greatest advance that has been made in dealing with a breech presentation is in connection with delivery of an after-coming head. We no longer limit ourselves to eight or ten minutes in delivering an after-coming head. As soon as the shoulders are born, the body of the child is raised and the perineum depressed, either with the hand or by means of a posterior retractor, and the mouth of the baby cleared of mucus, after which the baby can breathe inside the pelvis of the mother almost as easily as on the outside. This does away with any necessity for haste in delivering the after-coming head. We should be careful, however, not to exert too much pressure in delivering the after-coming head, because we may injure the brain and precipitate cerebral hemorrhage. Consequently, if the above described method does not show results very quickly, it is a very easy matter to apply forceps and deliver the after-coming head. In doing this, however, be sure that the head is in the widest diameter of the superior strait, which is the right oblique diameter. Do not turn the head anteroposteriorly, but turn it to the right and then apply forceps and slowly deliver. In this way we will prevent many injuries to the newborn in breech presentations.

**W. T. McConnell:** One phase of the subject that I would like to call attention to is the comparative frequency with which birth anomalies are mistaken for birth injuries. It is a good plan, when a baby dies following delivery, to insist upon an autopsy, and you will be surprised how many times you will find anomalies of the baby itself to account for death, and thus go far towards clearing your skirts of blame which might otherwise attach to you.

Of course, birth injuries do occur frequently and, while many of them clear up without a great deal of trouble, others do not. Paralytic birth injuries are usually the result of injury to the vault of the brain and are seldom fatal. Injuries which result fatally for the baby, with cyanosis and asphyxia, are usually caused by tears of the tentorium over the cerebellum. It seems to me, after having watched the delivery of a great many babies, that many of these birth injuries will clear up almost miraculously without serious results, but when things do go wrong and the baby dies, it is wise, for your own protection, to insist upon an autopsy, and in many instances it will be found that death supervened as the result of some anomaly for which no blame should attach to the doctor.

**Arthur T. McCormack:** I have been very much interested in this excellent report and the ensuing discussion, because it has a direct bearing upon one of the great problems confronting the medical profession in the fact that the percentage of neo-natal deaths has remained constant throughout all the improvements and advances that have been made in the fields of obstetrics, pediatrics and medical science in recent years. It is, therefore, of the utmost importance, it seems to me, that autopsies be held in neo-natal deaths wherever possible, and the results carefully recorded so that we may arrive at a solution of this problem.

There is no question that hurrying labor unnecessarily tends to increase the number of neo-natal deaths as well as injuries to the mother, and it is a matter of great comfort to those of us concerned in the preparation of statistics to know that those members of the medical profession who limit their practice to obstetrics condemn any unnecessary haste in this perfectly normal process.

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# THE HEALTH OFFICER'S VIEW OF THE RELATION BETWEEN THE HEALTH OFFICER AND THE PRACTICING PHYSICIAN*

Geo. W. Bushong, M. D.

Tompkinsville.

It is my purpose in this paper to discuss briefly the relationship between the practicing physician and the Public Health Officer and to touch on some of the problems arising from this relationship as they exist in my county, which is, after all, but little different from any other county or community in the State.

For a third of a century I carried on general practice in a county almost altogether rural, serving all classes of the population day and night, winter and summer. For twenty-five years of this period I served as part-time Health Officer. Since the duties of a full-time Health Officer were thrust upon me some four years ago, I have naturally, with this background, given serious consideration to the problems and relationships existing in our large medical family.

I should like to say right here that, after some special training in public health work and more than four years of experience and study, I am disposed to view my path as very narrow and beset with many pitfalls.

The medical profession has always been and will continue to be second to none. The Health Officer owes his first allegiance to this clan, and, although his work removes him from the competitive fields, he must not lose sight of the rich traditions belonging to his profession. Serving, as he does, all classes of people, he assumes a two-fold and important responsibility, responsibility to his profession and responsibility to the people whose welfare he is charged with guarding and whose confidence he must have, if his success is to be more than measurable.

The chief difference between the practicing physician and the Health Officer is that the former deals with the individual, while the latter deals with the group. The practicing physician is interested in the health and well-being of his patient as an individual. How the patient compares with the norm is of small significance. The Health Officer thinks of his work in terms of the mass. He visualizes his community on a chart. Curves of death rates, birth rates and incidences of communicable diseases largely indicate his success.

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*Read before the Mammoth Cave Area Public Health Society.

Most misunderstandings and conflicts between Health Officers and practicing physicians are based upon their differences in points of view. Therefore, they are not real or vital and, so, may be eliminated by intimate relationship or more frequent exchanges of ideas.

It is true that a certain amount of suspicion touching certain health activities exists among a considerable element of the medical profession. This suspicion is based upon the erroneous notion that the activities in question are encroaching upon the field of the private practitioner and, if continued, will result in loss of practice and consequent loss of income. The fear of State Medicine is constantly present, and, while properly conducted public health work should not be confused with State Medicine, the tendency so to confuse it has been sufficient to warrant the suspicion.

Looking at this question as I do, I am going to say frankly, though I know that all present will not agree with me, that, in my opinion, proper protection and promotion of the public health constitute the only preventive of State Medicine.

I must deal squarely with you as practical physicians, for you are dealing with a very practical world. There are as many definitions of State Medicine as the alley cat has kittens. The American Medical Association, however, defines State Medicine as follows: "Any form of medical treatment provided, conducted, controlled or subsidized by the Federal or any State government, or a municipality, except such service as is provided by the Army, Navy or Public Health Service, and that which is necessary for the control of communicable diseases, the treatment of mental diseases, and the treatment of the indigent sick, and other services as may be approved by and administered under the direction of or by a local medical society."

A physician with no training in public health and consequently without the public health viewpoint, will be likely, if appointed to serve as Health Officer, to overstep health bounds. Well trained and experienced health officers should have no trouble in this regard. If trouble does come, it is usually the fault of one or more members of the local profession who, for selfish reasons or because of lack full information, do not understand and, therefore, oppose legitimate public health activities.

The intensive practice of preventive medicine will reduce the cost of medical care in any and every community. A family which has had unnecessary cases of malaria, typhoid fever, diphtheria, scarlet fever or smallpox cannot be expected to be able to pay for good obstetrical, pediatric or surgical services or for life extension work which should be practiced more and more by the profession

Immunization work, as conducted by Public Health Departments, has also come in for its share of criticism.The law requires the Health Department to do everything within its power to prevent the spread of communicable diseases and the Health Officer is in duty bound to utilize, to the fullest advantage, every known preventive measure whose worth has been proved.

No one who understands will question the desirability of having every child immunized against diphtheria, typhoid fever and smallpox; and this is a type of work in the performance of which both the Public Health Officer and the practicing physician have parts to play. It is to the Public Health Officer's advantage to secure the participation of private physicians to the fullest possible extent. I am confident that every practicing physician could greatly enlarge his practice, while at the same time rendering valuable service to his patients and to the public, if he would instruct mothers to bring their children to him soon after birth for observation at regular intervals; if he would tell them positively and definitely that he would immunize the children against diphtheria at the age of six months, vaccinate them against smallpox at the age of twelve months, and protect them against typhoid fever at the age of two years.

The medical practitioner has a real place in the public health field. In fact, preventive medicine is going to consume an increasingly greater proportion of his time in the future. And by preventive medicine we do not mean only the practice of those ordinary things that are expected of every conscientious doctor, such as giving prophylactic biological preparations, taking precautions necessary to protect the community against infection from his patients and helping in various clinics for the indigent. These he does now, to a greater or less degree. But preventive medicine has taken on a broader meaning in recent years. There has come a realization that humanity can be made healthier and happier by the early detection and correction of minor deviations from the normal than by the application of curative measures after these conditions have produced gross pathology. "POSITIVE HEALTH" is as good a name as any for this new objective, and the family physician is its prophet.

The practicing physician whose mind thus works and whose actions are in accord is fulfilling the modern conception of his high calling. He must be a preventer of disease and a promoter of health, as well as a healer of the sick.

The slogan of the health department is "SEE YOUR FAMILY PHYSICIAN." No one who has worked with physicians practicing in rural communities can fail to admire their unselfishness, their devotion to the best ideals of the profession. But, if the practicing physician is wholly to fulfill his obligations, it is imperative that he look to the greatest welfare of the greatest number in the community and be adequately prepared to furnish the service requisite to proper promotion of this welfare. He must know Public Health. When a patient is sent to him by the Health Officer, the family physician should not fail to respond seriously, to make the examination complete and comprehensive. Instances could be cited in this State where practicing physicians, after examining patients having three plus tonsils, three plus teeth or who were twenty per cent under weight, have sent them back to the Health Officers with the statement, "There is nothing wrong that will not be outgrown."

As the Health Officer, in carrying out the slogan, "SEE YOUR FAMILY PHYSICIAN," is obligated to show no preferences in referring cases, so the family physician, in justice to the Health Officer as well as the patient, is under obligation to render in each and every case the best service of which he is capable. If defects are found which he himself is unable to correct, the case should be referred to a specialist. Certainly he should not tell the patient the defects will be outgrown.

No type of medical service in which there is not a blending of the two elements of prevention and cure will be satisfying or acceptable to the present generation.

Much of the misunderstanding, more of the friction and most of the unkindly comment on the part of individual practicing physicians are traceable to two causes: Lack of full understanding of the objective sought in any given public health program and failure on the part of the Health Officer properly to acquaint the medical profession with the program and, so, to prepare for its intelligent and kindly reception.

Without envy or jealousy and without strife, the trained Health Officer and the practicing physician must work together, and together they must press forward toward a common goal for the common good.

"Count that day lost, whose low descending sun finds the Health Officer with no real work done."

# THE WHOLE-TIME COUNTY HEALTH UNIT FROM THE VIEWPOINT OF THE GENERAL PRACTITIONER*

JOHN H. BLACKBURN, M. D.

Bowling Green

It is a pleasure to have the opportunity of discussing the Whole-time Health Unit in its relation to the physician in general practice for we may first consider the busy doctor and his affairs of private practice and then look at the broader scope of purely preventive medicine.

If I were a Stevenson, I would first pause to pay tribute to the " . . . men that stand above the common herd: . . . the physician almost as a rule. He is the flower of our civilization—. Generosity—, discretion—, tact—, Heraclean cheerfulness and courage. So that he brings air and cheer into the sick room, and often enough, though not so often as he wishes, brings healing." As the natural result of conditions and medical knowledge prior to some five or seven decades ago there developed the general practitioner, the family doctor whose responsibilities and daily cares were concerned with "Birth, Life and Death." A lack of knowledge regarding a direct, specific cause of disease led to delay on the part of people in consulting the physician and he came in contact only with disease in its fully developed stages. The modern idea of preventive medicine by learning the cause of a particular disease and then removing it was entirely unknown. How many of us older ones in the profession have in our libraries one of the older editions of Playfair in which he gave "sewer gas" as one of the causes of puerperal sepsis, and had an accompanying illustration showing how the noxious fumes were carried from a surface toilet through the lying-in chamber by currents of air in one of his own cases of child-bed fever? Personally, we can recall the last yellow fever scare, when New Orleans and other Southern cities were losing cases by the scores, when the Memphis epidemic of '78 was fresh in the minds of most Southern Kentuckians, when our own family physician was riding trains back and forth across the State line all day long in his search for "suspects" and a mysterious materies morbi, and when no one even thought of the *stegomyia fasciata*.

There were in those days few of the so-called methods of precision, only the most elemental laboratory aids were in use, and the busy doctor had to depend almost entirely upon his God-given faculties, sight, touch, learning, and not infrequently a rather remarkable exhibition of the olfactory sense. By comparison with our "moderns" there were few exploratories, and a remarkable knowledge of the clinical evidences of most diseases was shown. In those good old days the family physician did in truth "stand out above the common herd," for he was frequently consulted about many of the transactions of life, and his advice was sought in marital, financial and spiritual affairs as well as in the relief of physical ailments. Truly the doctor of the old school exemplified in the highest and the broadest sense the saying of Paget (Confessio Medici) "For, if a doctor's life may not be a divine vocation, then no life is a vocation, and nothing is divine."

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*Read before the Mammoth Cave Area Public Health Society.

Fifty years ago the work of the average physician was almost entirely taken up with the relief of symptoms, and the average health department at that time was concerned with the supervision of certain sanitary matters, such as drains, privies, plumbing, etc.; the control of smallpox by vaccination, and the control of other diseases by quarantine. The discovery of bacteria as the causes of many diseases lead to a change in the methods of treatment both preventive and curative, by the practitioner, and certainly the work of the Health Department was revolutionized by the bacteriological and epidemiological studies of the earlier bacteriologists and health officers. To quote from a recent publication (Outline of Preventive Medicine, N. Y. Academy of Medicine; Hoeber, Chap. xxiv) "The last fifty years have seen an enormous evolution in the work of practicing physicians and of health departments, and it is largely the readjustments which have been part of this evolution which have given rise to many of the misunderstandings between the medical profession and the health authorities."

As a result of the marvelous advances made in recent years the general practitioner is using every day the various laboratory aids in diagnosis, such as blood examination (smears, Widal's, Wassermann's etc.), cultures of various kinds, smears of sputum, stools and other excretions from the body, and many others such as the skin tests, lumbar puncture, etc. In our own case the Kentucky State Board of Health offers us most of these diagnostic aids free of cost and in this way familiarizes most of the doctors of the State with the practical and valuable use of these methods as well as helping a rather large indigent population that would otherwise be denied these benefits.

In addition to the diagnostic aids rendered by the health department as enumerated above, our entire population in Kentucky is the beneficiary of the work done in the preparation and free distribution of many vaccines and sera, and in the contracts made by our State Board of Health whereby all other sera and vaccines could be procured at a very much lower price than charged in the usual marts of trade. The death-rate and morbidity from many of the acute infectious diseases have unquestionably been very materially reduced in Kentucky as a result of this movement on the part of our State Board.

The greater part of the earlier work by most of the boards of health had to do with tuberculosis and the various aspects of its diagnosis and prevention. It was found that many of the busy doctors were unable to meet the demands of time and experience in searching out these cases, so the Tuberculosis Clinic followed as a natural result and "suspects" were urged to attend these clinics that were under the care of diagnostic specialists. In this way an early diagnosis was much more frequent, sanitarium care was more often provided the favorable cases and the physician in general practice was taught something of the treatment of tuberculosis beside the administration of drugs. In the same way the prevention of infant mortality soon began to engage the attention of the pediatricians and through them the boards of health. As a result of these studies many Baby Health Stations were established, and the care of the expectant mother became a part of the routine of preventing infant deaths. Further there followed the care of the infants into childhood and into the school age, with the idea of preventing or removing physical defects that would later retard the physical or mental development of the child. As a normal consequence of these movements there developed the present system of medical inspection of school children by nurses or physicians or the use of both. And how natural it was that if the mother was cared for intelligently during her pregnancy she had a broader view of the rights and privileges of her child and became its champion through membership in the Parent-Teachers' Association. And in an equally natural way you expect the modern teacher to be a strong advocate of all such movements for she has been taught throughout her school work the most recent ideas of modern preventive medicine regarding the health and care of children.

With the gradual evolution in the modern system of preventive medicine and in the conceptions of the health officer as to his obligations to society, and to its different members, it is quite natural that the busy physician whose sole thought is occupied with the relief of conditions that are fully developed and requiring urgent attention, should overlook the real significance of the movements so ardently advocated by the health officials. Not that the real doctor deprecates in any way the improving of health standards and the enforcement of health measures, but many of them have certain ideas as to governmental intervention in the affairs of life, and advocate and exercise the belief that these are the things that should be cared for by the individual. And we must with equal frankness admit that there are doctors who look with displeasure upon any such movements that seem to take over the duties of the physician as to treatment of disease in any way.

So far as our personal experience goes we can state that the greatest objection offered by most physicians has been in the matter of the use of vaccines by the Board of Health especially in the prevention of typhoid and scarlet fever. It is fair and right that this particular line of treatment should be administered by the family physician and it is as a rule a rather constant source of income. But are not we physicians forced to admit that the records show that when this type of preventive treatment is done by the Board of Health the percentage of immunes is much larger than when the family physician alone is depended upon to enforce it? Probably the Board of Health should further lend its efforts toward the education of the public through the schools and Parent-Teachers' Association as to the value of these measures, and the necessity for their enforcement.

We are forced to admit that this question, like most of the controversial affairs of life, has two sides to it, and that either of us may become prejudiced if we fail to view it in the light of "the greatest good to the greatest number." To quote further from the New York Academy of Medicine, Outline of Preventive Medicine. "Careful consideration of the situation shows that some of the opposition of the practicing physicians is justified, for there is no doubt that now and then health authorities in their enthusiasm to complete a certain piece of preventive work have established examination and treatment services which trespass on the family physician's domain. At the same time it is clear that the medical profession as a whole has failed to provide sufficiently for the practice of preventive medicine, and thus has compelled health authorities to lead the way."

So it seems to us that in the relations existing between the physician and the Health Unit there are mutual obligations and duties; that each should in the daily work aid and abet the other; that it is encumbent upon the Unit to assist the physician so far as possible by keeping in view the broader work of diagnosis and prevention, especially in the acute infections; that the physician should in every way possible assist in the education of the public as to health matters and in the enforcement of health laws; and through it all let us hope that the practitioner may in truth be a family physician advising and helping his patients in temporal and material affairs as well as in the ailments of the poor human frame; and further may he continue to maintain that close personal relationship to his families that connotes the family doctor, the Reports of Committees on the Cost of Medical Care to the contrary notwithstanding.

## RUPTURED APPENDIX, REPORT OF CASE*

Charles M. Edelen, M. D.

Louisville.

This is the report of a patient admitted to Norton Infirmary during the past Summer presenting the usual history and symptoms of an acute appendicitis.

Other than several attacks of acute tonsillitis, his previous history was not important.

Temperature, 97.6, Pulse, 66, Respiration, 22.

Physical examination revealed a white male adult of nineteen years with several carious teeth, infected throat and hypertrophied tonsils. On examining the chest there were some fine rales which cleared up on coughing.

The findings, upon examination of the abdomen, were typically those of an appendicitis.

Upon opening the abdomen the appendix was removed in the usual manner through a right rectus muscle splitting incision under a spinal anesthetic of 150 Mg. of novocaine, a cigarette drain being used, as there was a small localized collection of pus.

The morning of the third post-operative day, upon entering the patient's room, it was evident from his anxious expression and slight cyanosis that he was not getting enough oxygen. His temperature was 101.8, pulse 90 and respiration 24. He had a productive cough, the sputum being of a tenacious gray character.

Examination of chest revealed a positive

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*Read before the Jefferson County Medical Society.

Hoover sign on the right, impaired percussion note over the right base, a diminution or absence of breath sounds, many coarse and fine rales, diminished tactile fremitus, displacement of the apex beat and a slight deviation of the trachea to the right.

The patient's condition rapidly became worse. He was placed in an oxygen tent from which we were unable to move him for the next eight days without causing a marked cyanosis and respiratory distress. At times he had a pronounced cardiac irregularity, could not retain food or fluids by mouth and was bothered continually by the cough mentioned previously.

On the ninth post-operative day, after a severe coughing spell, approximately fifteen inches of small intestine were pushed through the incision. His condition at this time was such that we could not move him to the operating room. The bowel was cleansed with normal saline and aseptically as possible replaced within the abdomen and the wound margins held together by adhesive strapping. Following this procedure his temperature rose to 104 and his condition remained extremely serious for the next forty-eight hours at which time however he began to show signs of improvement—his pulse, temperature and respiration again approaching the normal range.

Laboratory: X-ray July 14th, 1932.

Flat A. P. of the chest, portable technique: The right lung field shows a coarse mottled infiltration extending from apex to base. The density is more pronounced at the base. Along the axillary border an elevated thickened pleura is seen.

The trachea and heart are shifted to the right. A line is seen in the third anterior interspace that probably corresponds with the inter-lobar septum. The diaphragm is not definitely made out. It probably lies at the level of the ninth posterior rib. The left lung field shows increased markings. No evidence of infiltration is seen. The left diaphragm is high due to the large gas-filled stomach. Just at the lower edge of the film, a gas-filled loop of the large bowel is seen.

Findings: Right lung; atelectasis, broncho-pneumonia and pleural effusion. Left lung; congestion secondary to the pathology in the right lung. Distention of the stomach and large bowel.

X-ray July 20th, 1932.

In comparison with the previous film the same shifting of the mediastinum to the right, the infiltration throughout the right lung, fluid in the right pleural space and indefinite diaphragm are seen. The density in the upper right lung field has increased. The left lung field shows no changes.

Findings: Atelectasis, broncho-pneumonia, right pleural effusion, right congestion in the left lung and abdominal distention.

X-ray July 30th, 1932.

X-ray of the chest shows a band of increased density in the mid-portion of the right root to the periphery on the right possibly representing thickened pleura and possibly a small accumulation of fluid in this area. Lung fields appear otherwise negative.

Repeated examination of sputum were negative for tubercle bacilli but showed many pneumococci and pus cells.

The treatment was chiefly preventive and symptomatic. We used a spinal anesthetic because of the findings of the physical examination. Hyper ventilation with carbon dioxide and oxygen was used at the completion of the operation, frequent changes of position and deep breathing exercises were ordered when the patient was transferred to his bed. Symptomatically oxygen was supplied by means of a tent, fluids subcutaneously and intravenously when the intake by mouth was insufficient, cardiac stimulants and opiates for the pain and cough.

In examining this patient recently, we were unable to find any evidence of his previous pulmonary condition and the incision was holding fairly well.

Recently the literature has been filled with articles on post-operative pulmonary complications and in reading some of them one realizes that the writers labored under the same difficulties in analyzing their large series of cases that we did in this one case.

The findings upon percussion and auscultation of the chest, at least early in the condition, are essentially the same in both atelectasis and broncho-pneumonia and only by observing the shifting of the mediastinal structures, toward the involved side, a narrowing of the inter-spaces and an elevation of the diaphragm both by physical examination and x-ray can one be certain that the condition is atelectasis.

We have gathered from the literature and our own brief experience that post-operative pulmonary complications are just as frequent and probably more so, following spinal or local anesthetic as inhalation anesthesia.

## DISCUSSION

**R. L. McCormack:** Just a few words regarding a phase of this subject which has not been definitely settled. Ford, in the Journal of Obstetrics and Gynecology, and Abdominal Surgery, reported a large series of cases in which, if I remember correctly, five per cent developed pneumonia following spinal anesthesia, and the use of carbon dioxid and oxygen inhalations reduced the mortality to less than one-half of one per cent. That oxygen alone will not relieve cyanosis was shown by Dr. Leon Collins in a series of 525 cases reported by him, in which the percentage of failure was 66%, and when all other symptoms were taken into consideration, 77% was the failure percentage.

The use of carbon-dioxid and oxygen instead of oxygen alone has a tendency to keep the respiratory rate and depth a little higher than the normal breathing rate, whereas oxygen alone tends to decrease the rate and does not allow for drainage. Then, too, carbon-dioxid used before consolidation of the lobe or part of the lung, will assist drainage and tend to prevent the fibrin deposits from becoming firm, and allows better circulation in the affected tissues.

A study of the literature on the subject, including reports by Leon Collins, McGill and others, embracing many cases of pneumonia, post operative and otherwise, shows conclusively that oxygen alone is not as satisfactory as carbon dioxide and oxygen, and that whenever oxygen is indicated, carbon-dioxid should be used in conjunction with it.

**Simrall Anderson:** A U. S. A. surgeon at Fort Sam Houston, whose name I do not now recall, recently published an article based on a series of one thousand cases of spinal anesthesia, about five percent—on the fourth or fifth day following operation developed considerable elevation of temperature with marked respiratory distress. X-ray examination of these patients showed one lung collapsed. All of these patients recovered. Carbon-dioxid and oxygen were used.

**Charles M. Edelen** (in closing): Dr. Donald King, of the Massachusetts General Hospital, in the January issue of Surgery, Gynecology and Obstetrics, reports a large series of cases of pulmonary complications following all forms of anesthesias. He expresses the belief that most cases of elevation of temperature on the third or fourth day after operation are due to chest complications, and says that the majority of these cases are not checked up because the area of atelectasis in the lung is small and usually clears up without treatment, but where they involve large enough areas they will be picked up by the medical examiner or by X-ray examination.

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**Epidemic Myositis-Serositis.**—Of Heckscher's eleven cases of epidemic myositis, all with favorable course, five also presented a dry pleurisy and one presented pericarditis and myocarditis. Except in the last case the blood sedimentation was normal a few days after the end of the fever.

# BLASTOMYCOSIS OF FACE AND ARM*

WINSTON U. RUTLEDGE

Louisville.

Since 1894 when Gilchrist first called attention to the new mycotic infection which was due to the Blastomycete, innumerable cases of both the cutaneous and systemic types have been reported, not only in America, but in many foreign countries. For that reason it is no longer classed among the pathologic curiosities, but it is still sufficiently rare to warrant the occasional presentation of such a case, not only to refresh our memory of it, but also to re-emphasize the other conditions with which it may be confused.

T. F., colored, age forty-six, a native of Louisville, occupation laborer, was first seen at the City Hospital on December 20, 1924, at which time he presented granulamatous, sharply defined quarter sized lesions on the tip of his nose and left cheek, and the extensor surface of the left fore arm. He gave a history of having noticed the first spot on the tip of his nose. It began about five months before coming to the hospital as a "small pimple" which grew slowly and was followed in a short while by the development of the other lesions.

Physical examination was negative except for carious teeth and a mild pharyngitis. X-ray examinations of the chest and sinuses showed them to be normal. His Wassermann was negative.

One week after admission, the involved areas on the nose and cheek were excised and skin grafts applied, and the wounds were healing nicely when the patient left the hospital, ten days later, without permission. Microscopic examination of the excised tissue showed the typical pathology of blastomycosis, but no blastomycetes were demonstrated at that time. The lesion on the left forearm was not removed but apparently healed completely after two intra-venous injections of mercurochrome.

Following this treatment he remained apparenty cured for about five years and then on August 4, 1930 he returned to the surgical clinic with a recurrence of the infection on his left cheek and left forearm. During the next two months he was treated in the surgical O. D., receiving twenty-two injections of 20 cc each, of 1% mercurochrome intravenously. Under this treatment the infected area on the left forearm again healed completely but the sore on the left cheek continued to enlarge until it covered most of his face.

He was re-admitted to the hospital on October 17, 1930,at which time he presented an atrophic depigmented scar on the extensor surface of his left forearm, extending from his wrist half way to his elbow. On his face there was an extensive serpigenous, sharply delimited lesion involving all the left cheek and the anterior two-thirds of the right; and extending downward beneath his chin to the mid-line. His lips were tremendously edematous and swollen, and because of the painful fissues at the lateral margins, he could scarcely open his mouth.The infection had extended upward, causing partial destruction of both upper and lower lids with a marked ectropion of the right lower one. There was a severe purulent conjunctivitis of both eyes and the sight of the left eye was practically gone. There was marked destruction of the nasal tissue and the external nasal orifices were partly occluded by scar tissue.

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*Read before the Jefferson County Medical Society.

For the most part, the margins of the involved area which was brownish red in color, rose up sharply from the normal skin in an elevated, crusted and papillomatous border, from many parts of which exuded a purulent, foul smelling secretion. The central portion showed atrophic scarring with one or two small islands of normal skin remaining in it. The characteristic contraction of the scar tissue was clearly demonstrated by the marked ectropion of the right lower lid. The odor from this lesion was so offensive that it was difficult to remain in the room with it for any length of time.

His nutrition was fairly good though his blood showed a severe secondary anemia and moderate leucocytosis. Examination of his lungs was negative. His heart was slightly enlarged to the left but no murmur was heard. A small section of skin removed from the border of the lesion for histologic study, showed the characteristic changes seen in this disease; consisting of hyperkeratosis, acanthosis and multiple intra-epidermal abscesses containing endothelial, plasma and polymorphonuclear cells. Giant cells of the foreign body type were present in large numbers, and scattered through these abscesses were found numerous single and budding blastomycetes which appeared as double-contoured, refractive, round and oval bodies, varying in size from five to thirty millimicrons in diameter.

During his stay of seven weeks in the hospital, under the influence of antiseptic wet dressings and fairly large doses of Potassium Iodide by mouth, the infected areas showed marked improvement. The secretion and odor decreased, the edema of his lips largely disappeared and the elevated verrucose border flattened down appreciably. When he left the hospital, his condition had greatly improved but he left against our advice. He did not return to the Clinic after that and when I traced him down, hoping to be able to present him to you tonight, I found that he had died, unattended, in a vacant room, several months ago. His death was attributed to systemic blastomycosis, although no Post Mortem examination was made to substantiate this diagnosis.

His case illustrates well the chronicity, resistance to treatment and the tendency to recurrence of this cutaneous infection. Since its first recognition, many hundreds of cases showing skin involvement alone have been reported, while more than a hundred of the pulmonary or systemic type have also been described. It is an interesting fact that rarely do the cases of primary skin infection later invade the blood or lymph channels or deeper organs of the body. On the other hand, those examples in which the infection appears to begin in the respiratory tract, often invade every tissue of the body, and in these cases, the skin involvement takes the form of superficial or deep abscesses, which later break down, causing ulcerations, sinuses and fistulae.

The causative fungus was at first considered to be a specific entity although shortly after its discovery, Lydia Rabinowitsch, working with fifty species of blastomycetes, found seven of them to be pathologenic for experimental animals. More recently, Castellani in an investigation carried on, over a period of six years, of blastomycetes recovered from American cases of blastomycosis, was able to divide them into four distinct groups on the basis of their cultural differences. His research led him to believe that there is a plurality of closely related species of fungi causing North American Blastomycosis and not a single etiologic agent.

How the inoculation of this fungus into human tissues occurs is unknown. The ease with which it may be grown on damp, sterile bread, paper, cardboard, cotton, sawdust, fruits and vegetables, makes it appear that its habitat is wide-spread. The roll that trauma plays in the cutaneous cases seems to be important. Gilchrist reported a case in which the infection developed on the back of the hand six weeks after the same area was injured with a piece of wood. Stober mentions a case in which the infection commenced on the heel a short while after the same area had been cut on a clam shell, and another case in which direct inoculation of the skin occurred after scratching with the finger nails and subsequent recovery of the blastomycete from detritus removed from beneath the same nails.

In an investigation of a number of cases of the systemic type of the disease occurring around Chicago, Stober found that in a large proportion of them, it developed in persons living in dark, mouldy cellars, amid dirt and filth, and he concluded that the disease was more apt to occur during the months of greatest dampness and mould growth, and that blastomycetes have their habitat in damp unsanitary places. He recovered from one such abode, a mould resembling in many ways the true blastomycete but he could only speculate as to its pathogenicity for man. From such evidence it would seem that cutaneous inoculation by trauma and the aspiration of the mould into the respiratory tract might explain the onset of many of these cases.

The skin conditions which may be confused with blastomycosis are few in number, but their Clinical similarity is such that at times diagnosis may be difficult. The tubercular infection of the skin known as Tuberculosis Verrucosa Cutis more closely simulates blastomycosis than any other condition, due to the serpigenous spread and papillomatous border of the lesion, and laboratory methods are often required to differentiate them. Tertiary Syphilis, Lupus Vulgaris, certain types of epitheliomas, and lesions due to the ingestion of bromides, may also resemble it in many respects, but the Wassermann and Tuberculin reactions, guinea pig inoculation, the history of the ingestion of drugs and the characteristic histopathology of these conditions will always make the correct diagnosis possible. Coccidioidal dermatitis due to the oidium coccidioides may in rare instances lead to a faulty diagnosis due to the close resemblance, not only of the skin lesions, but also of the causative organisms, but this condition is a most unusual one, endemic to Southern California and usually occurring as a systemic infection. . The most important point in the differential diagnosis of these two diseases, is that the organism of coccidioidal dermatitis multiplies by spore formation while that of blastomycosis reproduces only by gemmation or budding.

The treament of cutaneous blastomycosis in the early stages is fairly satisfactory but it presents more and more difficulties proportionate to the length of its duration. Where the lesions are small and few in number, their complete destruction with the cautery or Carbon Dioxide Snow or through surgical excision offers an excellent chance for a permanent cure, but where the involved areas have spread or multiplied to such an extent that these procedures are not feasible, we must resort to other measures. Of these, large doses of Potassium Iodide by mouth, up to 500 grains, three times a day, destructive doses of x-ray and injections of Arsphenamine have been found to give the best results, but unfortunately, apparent cures of these advanced cases are followed many times by later recurrences.

It seems to me that the practice of preventive medicine, carried out through thorough disinfection of wounds produced in the presence of dirt or vegetable matter, improving the sanitation of living quarters and preventing the inhalation of dust laden air, are more satisfactory methods of combating this infection than attempting its eradication once it has found a favorable foothold in human tissue.

## DISCUSSION

**D. Y. Keith:** I have seen a number of these cases. One I recall most vividly was in a County policeman whose ears were frost-bitten during the severe winter of 1917-1918. This man had a lesion that involved his ear and most of one side of his face and a part of his nose. I thought when the nares were reached he would develop respiratory infection and a fatal termination would soon occur. This was not the case. This man came to see me about four weeks ago, fourteen years after I first saw him, not because of any recurrence of the blastomycosis, but because of the scar formation and keloids which had formed. He is now eighty-five years of age and will probably have squamous cell carcinoma in the scars

Usually when the lesion occurs about the nostrils, it is followed by respiratory infection which rapidly spreads into the throat and then into the lungs and the patient dies very quickly from pneumonic blastomycosis.

I have seen one or two systemic cases in which there has been infection of the bones. If the patient lives long enough, it may metastasize into practically every system of the body, but it appears to have a selective action upon the bones.

Where the lesion is confined to the skin, we can arrest or cure it by radiation therapy. In the case referred to, this man became very resistant to x-rays, and the infection was overcome by a few applications of radium given unfiltered.

**C. B. Willmott:** Dr. Rutledge has given us a most exact and comprehensive report of this case.

In the past twelve years we have seen some twenty-five or thirty cases of this condition, most of them at the City Hospital. In my private work, I have seen some ten or twelve cases and I have never resorted to the use of potassium iodide, but have succeeded in curing most of them by X-rays and ordinary surgical dressings.

As Dr. Rutledge has pointed out, the infection is usually introduced into the skin by trauma, and in every case that I have seen in private work I have been able to get such a history. If the diagnosis is made while the lesions are small and have existed for only a few days or weeks, it is fairly easily controlled I have had one or two cases in which the lesions were about the size of a nickle, and have succeeded in curing these with the application of pure carbolic acid, and the ordinary surgical dressings applied.

**Winston U. Rutledge** (in closing): In looking up the literature on this subject, it was interesting to find that perhaps the first case recorded in Kentucky was one seen by Dr. Gaylord C. Hall and Dr. Henry Koehler, in 1904. It occurred in a colored individual living at Elkhorn, Ky. I think this patient subsequently died while under treatment.

Regarding what Dr. Keith said about these patients becoming radio-resistant, I have found that much better results are obtained by two or three large, destructive applications of X-rays than by smaller doses, frequently repeated, which are more apt to result in the organism becoming radio-resistant.

# REPORT OF A CASE OF TUMOR OF THE CEREBELLO-PONTILE ANGLE WITH PRESENTATION OF PATIENT*

George F. Doyle, M. D., F. A. C. S.

Winchester

Tumors situated in the angle formed by the cerebellum and the pons present symptoms referable to the cerebellum, to the tracts in the pons and to the cranial nerves which emerge in close proximity. If the tumor grows from the cerebellum, cerebellar manifestations will appear first. If the tumor originates in the cranial nerves, the eighth being the most frequent, symptoms of the latter will be observed in the beginning.

In the following case the growth had its origin in the eighth nerve, since the first symptoms to appear were impairment of hearing in the left ear, also vertigo with a tendency to fall to the affected side, all conditions produced by involvement of both branches of the acoustic nerve. As the growth progressed in size, however, involvement of the other cranial nerves, as well as symptoms caused by pressure upon the cerebellum and pons made their appearance.

The report of the cases is as follows:

G. R., male, white, aged 28 years, by occupation a farmer, consulted me on January 12, 1930, giving the following history:

Family History: Father living, aged 81 years, but is suffering from the results of a mild attack of apoplexy, which occurred two or three years ago. Mother living, aged 68 years; suffers from rheumatism, according to patient's statement. Six brothers living; five are well and one older brother has a condition similar to this patient's, which has existed for the past three years, although his statements are rather vague as to his brother's condition. Two sisters living and well; one dead, cause unknown.

Past History: Had whooping cough and mumps during childhood. Five years ago suffered from "weak lungs and heart trouble." Two years ago had an attack of vertigo, which lasted for one week. Never had any further trouble until the present symptoms developed. No history of head injury. Denies any venereal history.

Present Complaint: Present trouble began in June, 1929, with dizziness, which is present both while standing and sitting, but disappears upon lying down. In July, he developed a staggering gait; is unable to walk without staggering and always staggers and falls toward the left side. In August, tinnitus aurium manifested itself, being of a roaring character, and lasting for two weeks, at the end of which time he noticed impairment of hearing in the left ear. The deafness became progressively and rapidly worse until at the present time he is totally deaf in the left ear. There is no impairment of hearing in the right ear. On September 15, he noticed that muscles weak, so that he could not close the left eye completely. During the early part of November, he developed pain in the left eye, with impairment of vision in both eyes. He states that he still has some pain in left eye, but it is not constant. About January 1, 1930, the left side of the tongue became numb and about two weeks later he developed dysphagia. At the same time suboccipital headache appeared, which is present each morning, but passes off during the day. The left arm and leg gradually became weak and when he tries to use the left arm it shakes considerably. He has had frequent attacks of epistaxis, which are always controlled with great difficulty. About one month ago had diplopia, which only lasted a few days. Has never had any nausea or vomiting.

Physical Examination: The patient is a fairly well nourished adult male. The station is poor; he falls to the left, and in walking or standing there is persistent unilateral sway, which is also toward the left side. In walking his gait is exactly like that of a drunken man. There is ataxia of the left upper extremity, and while this symptom is not marked, yet in testing with the finger-to-nose movement there is some unsteadiness on the part of the left hand in reaching the nose, which shows a beginning incoordination of the muscular movements. There is not, however, any distinct overaction, dysmetria or hypermetria. However, two months following this first examination there was present very marked dysmetria of the left upper extremity. In testing the lower extremities for coordinate movements by having the patient place the heel of one foot on various parts of the other lower limb, the left is more unsteady than the right, although no distinct overaction can be detected. Adiadochokinesia is present in the left hand. This consists of an inability to rapidly pronate and supinate the hands. In comparing these movements in the two hands we find that the left lags and cannot keep pace with the right. There is also some tremor of the left hand and arm. The patellar reflexes are somewhat exaggerated, this exaggeration being more marked on the left side. No ankle clonus or Babinski on either side. Kernig's sign absent. The head is drawn slightly backward. Palpation and percussion over the occipital and suboccipital regions elicits no pain.

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*Read before the Clark County Medical Society.

There is anesthesia of the left side of the face, including the conjunctiva and cornea, and also facial paralysis of the peripheral type on the same side. The tongue protrudes normally, but there is slight analgesia of the left half. The sense of smell is unimpaired and there is no disorder of speech.

Examination of the chest and abdomen reveals nothing abnormal.

Urinalysis: Amber; slightly cloudy; no sediment; 1,028; no albumen; no sugar; few leukocytes; an occasional squamous epithelial cell; no crystals; no casts.

Wassermann reaction negative.

Skiagraph: Antero-posterior view shows all the accessory sinuses clear and no indication of disease. Lateral view shows a dense shadow in the anterior part of the posterior fossa of the skull, which is very suspicious of a growth.

Eye Examination: O. D. V. = 6/9; O. S. V. = 6/15. The left eye does not close as quickly as the right. The left pupil is slightly larger than the right; both eyes react to light and accommodation. There is spontaneous nystagmus in all directions, but increased when the eyes are turned toward the left. Anesthesia of the left conjunctiva and cornea. No paralysis of the extraocular muscles.

Ophthalmoscopic Examination: Both eyes the same. Media clear. The optic disc is moderately swollen, very hazy and the margins indistinguishable; the arteries are normal in size, but the veins are somewhat dilated and tortuous. Bilateral optic neuritis.

Nose and Throat Examination: Both nasal cavities show congestion of the mucosa, and there is an ulceration on the left side of the cartilaginous septum; it is from this point that the hemorrhage occurs. Transillumination of the accessory sinuses shows the frontals, ethmoids and antra clear. Pharynx and tonsils show nothing abnormal. Vocal cords are slightly congested, and while their action is a little sluggish, they approximate well.

Ear Examination: Right ear normal. Left membrana tympani shows slight retraction, otherwise normal in appearance. The left ear is totally deaf, both aerial and bone conduction being entirely absent.

Vestibular Reactions: In testing the vestibular apparatus by means of the cold caloric test there was a complete absence of reaction of the vertical canal, both on the side of the lesion and the opposite side as well.

Summary: First, it will be noticed that we have involvement of certain of the cranial nerves. There is anesthesia of the left half of the face, including the conjunctiva and cornea, due to involvement of the fifth nerve. There is also facial paralysis of the peripheral type, denoting involvement of the seventh nerve. We also have total deafness in the left ear, with vertigo and a tendency to fall to the left side, all conditions produced by involvement of both branches of the acoustic nerve. There is apparently no involvement of the sixth nerve.

Second, we have manifestations referable to the cerebellum with its peduncles, namely, staggering gait, which is always to the left side; the persistent unilateral sway in walking or standing is highly suggestive of a cerebellar involvement, especially of one of its lateral peduncles. We also have ataxia of the left arm and leg, which is another important cerebellar symptom. Adiadochokinesia is also a phenomenon characteritic of cerebellar lesions. It consists of an inability to rapidly pronate and supinate the hands. If on comparing these movements in both hands it is found that one of them is lagging and cannot keep pace with the other, a unilateral involvement of the cerebellum is to be suspected, the affected hand corresponding to the side of the lesion.

Third, we have evidence of compression of the pons itself. These symptoms are referable to motor and sensory pathways which pass through the pons. Of the sensory disturbances, we have in this case, anesthesia of the left side of the face, including the conjunctiva and cornea, and analgesia of the left half of the tongue. Sensory symptoms are not frequent, as a rule, and when present are usually very slight. Paralysis due to compression of the pons is observed upon the opposite side from the compression and is absent in this case. The patellar reflexes are somewhat exaggerated, especially on the left side.

In addition to these three groups of symptoms referable respectively to the cranial nerves, cerebellum and pons, the condition of the eyes is of the greatest importance. We have here a bilateral optic neuritis, nystagmus, and anesthesia of the conjunctiva and cornea, which point strongly to a neoplasm.

The failure of the vertical canals to respond to the cold caloric test is a vestibular manifestation of increased intracranial pressure in the posterior fossa. In surgical lesions the vestibular manifestations which stand out most prominently are those of increased intracranial pressure, and these vestibular manifestations are disclosed only by the caloric test, just as the ocular manifestations of increased intracranial pressure are disclosed only by the ophthalmoscope. This vestibular manifestation of increased intracranial pressure in the posterior fossa, namely complete absence of reactibility of both vertical canals to the cold caloric test, is a general diagnostic symptom of importance, but is of no localizing value. Its presence, on the other hand, prevents further localization by the vestibular test alone.

When we consider this clinical picture as a whole, as we must do in these cases, rather than placing too much importance upon any one single symptom, we can unhesitatingly make a diagnosis of a neoplasm in the left cerebello-pontile angle.

As to the nature of the growth, however, we are not so sure. The most common forms of tumor in this region are glioma, sarcoma and syphiloma. Those which originate in the cranial nerves are most commonly gliomatous, and I believe that this growth had its primary site in the eighth nerve, yet at the same time the question of syphiloma must be considered in this case, for while the Wassermann reaction was negative on two tests, the patient seems to be improving to some extent under the administration of full doses of the iodides.

Operative interference with a view to eradication of the tumor, I do not believe should be considered in this case. A decompression operation for the purpose of relieving the increased intracranial pressure, will afford some abatement of the symptoms, but, of course, is only palliative.

Subsequent History: The patient refused and operative interference and returned to his home in a distant part of the state, where he died on October 22, 1930, eight months after I last saw him. Two months previous to his death he became totally blind in both eyes, according to the report from the family.

# PELLAGRA*

T. M. Radcliffe, M. D.

Kona.

I have undertaken to write a paper on a subject that I know practically nothing about.

I have not treated any great number of cases of pellagra but I have been worrying with one individual case for several years, that particular case happened to be your humble servant.

The majority of physicians are followers and not leaders and like all other animals, follow a leader.

We are likened unto a drove of sheep. In driving along the road and see a bunch of sheep quietly grazing upon the green field and suddenly there is a peculiar noise on the side of the field and away they go to the farther side following their leader, never looking to see the trouble until the leader stops, when they find there was nothing to harm them.

Definition and History: Pellagra is taken from two words, pell meaning skin and agra meaning rough.

Pellagra, is an endemic malady which is characterized by an erythema upon the exposed surface of the body, by gastro-intestinal disorders and by nervous phenomena of toxic origin. It may terminate by severe cachexia, insanity or death.

The first written account and description of which we have any record, is credited to Casal, of Spain, in 1735. It gradually began spreading over Spain, Italy, France and numerous European countries more and more each year. The medical authorities became alarmed, it was making devastation among their people, all they could do was to no avail. They began investigations of all kinds, scientific, research workers, social workers, Government Public Health workers, geographical surveys, and finally the legal authorities passed laws prohibiting sale and consumption of certain kinds of food.

Some of the best medical talent in Europe spent years in research and in investigating this malady. Lombroso one of the most learned men of his time spent the last twenty-five years of his life most entirely to this work, he wrote several extensive works on this disease and died thinking he had discovered the real cause of the disease.

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*Read before the Letcher County Medical Society, April 25, 1933.

Thus it spread for one and a half centuries before we were infested with it in the United States.

At one time, in some of the foreign countries. Pellagra was so prevalent that it was estimated that one person in every five, were pellagrous and and two-thirds of all in mates of insane asylums were pellagrous. It was unknown in the United States until about 1907 or 1908, although there possibly were a few sporadic cases before this, we have no written account of it.

Pellagra first made its appearance in the United States in 1907 or 1908, in the southern states, from thence until 1915 this malady spread like wild fire to a number of states when at this time it seemed to reach its climax and today it is somewhat on the wane.

Pellagra is a seasonal disease, it is no respecter of age, sex, or color, although it is mostly found in adults and old age.

Statistics give it that the female sex is the more susceptible but in my observations they have been pretty equally divided. I have never seen a case in children.

Etiology: The cause of pellagra, I do not know, nor has there with all the investigation and reseach work, been any established fact, in my way of thinking, that any one knows.

However, there have been various theories advanced all along down the line and we will look at some of them and put the acid test to some.

Some of the older writers had a theory that the rays from the hot sun caused pellagra and backed it up with various investigations, some thought excessive use of alcohol caused it and other theories were advanced, but they have all been discarded and thought no more of.

So we will only discuss the three main ones that have held the fort the longest.

They are: 1st, that it is caused by some toxin of spoiled corn, or maize; 2nd, that it is caused by a microbiotic agent; 3rd, that it is due to dietary deficiency of one sort or another.

Let us pause for a few moments on the first theory.

The first of the older writers thought that pellagra was caused by the use of any kind of corn-products, where it was used as the principal diet, but after much research, scientific investigation, clinical work and geographical surveys they decided that sound corn would not cause it, the corn or corn products must be spoiled to produce the disease. Of these advocates Lombroso was one of the leading ones and he spent the latter years of his life in the study of pellagra and died believing that this was an established fact.

So this theory was the general belief in Europe and the United States until Sambon in 1905 suggested and later elaborated the theory that pellagra is an insect-borne parasite disease, then it was that the maize theory began to get into reverse and today it has practically passed into oblivion.

The second theory, as stated above, was suggested by Sambon and about 1908 or 1910 described this theory to some extent; he advocated that the transmitting agent is a species of fly similar to the Buffalo knat and is found in running streams of fresh water.

So then the medical profession became considerably divided until about 1915 when Goldberger, after his U. S. Public Health Research Work, made known to the world his great and glorious discovery. However, today a great many southern physicians still hold to the parasite theory. When I first had pellagra I went to Hot Springs, Ark., and there I met a physician by the name of Van Leer, who was a very eminent physician. He had an extensive practice in general medicine and treated a great many of the pellagras in the south. His idea was, that the disease was caused by a parasite, this fly, he thought propagated, and is found in small running steams of water that flow down out of the hills into the valleys.

I read an article a few weeks ago in The Medical World written by Dr. B. W. Page, of Trenton, N. C.; he claims after 11,000 microscopical examinations of the feces of human beings he has observed a peculiar bacillus which he has been able to associate with pellagra, although he fails to name the germ or as to how he thinks it gains entrance into the human body. The parasite theory has practically given way to the third and present day theory. This theory is, the unbalanced diet, which you are all familiar with.

This theory, as stated above, was brought into vogue about 1914 or 1915 after Goldberger's extensive research work with the U. S. Public Health Work.

The supposition is, a deficiency of some kind, possibly some form of vitamin whose letter has not been discovered, maybe, when they get far enough down the alphabet possibly to X, Y or Z, they will find it but I seriously doubt it.

Here is where one sheep fails to follow the leader, in other words, here is where we lock horns.

Of course you will say "Why do you object? You have already said you knew nothing about pellagra." Well, let's just stop our speeding for awhile and use a little old common horse sense.

We will just take my own case first. I was not born a multi-millionaire nor have I attained it yet, but I was raised on a farm, where all kinds of fruit and vegetables that grow out of the ground in the temperate zone were raised and drank plenty of milk, ate eggs and meat, etc. Since I have been on my own resources I have been always able to keep a well balanced supply of food. Some one may say "Maybe you had these things still you did not eat them." Well, I was never a gormandizer but I have been a pretty fair eater for my size and have always been a great milk drinker.

Why, if it is the lack of some unknown vtamin that we see whole neighborhoods and countries subsisting upon practically the same diets and only a few have pellagria? Why, in the same family all eating the same diet and only one with pellagra? Why, in a time like we have passed through in the last four years and thousands subsisting on very meager rations and many going hungry that pellagra seems to be on the wane? Why pellagra appears in certain sections of the country? When the whole United States subsisting on practically the same line of diet. Why in the extreme north, the Eskimos for instance, where they live almost entirely on meats alone and pellagra is unknown? Last but not least, since pellagra only appeared in the United States in 1907 or 1908, and there have been people that lived on an unbalanced diet every since Adam was kicked out of the Garden of Eden? Why so late in affecting our people?

This theory is so thin that you can see through it edgeways, in fact I think the least feasible of any that has been advanced. Personally, the parasite theory looks the most logical to me. But until future generations find out the real cause we will have to lumber along just as we are.

Diagnosis: Pellagra is very easy diagnosed after the dermatitis appears, no one could possibly mistake it, but before the dermatitis appears it is rather difficult as its many symptoms simulate other diseases and can hardly be diagnosed before the appearance of the erythema.

Symptoms: The early symptoms are, neurasthenic manifestations fatigability, slight digestive disturbances, insomnia, slight vertigo, and feeling of apprehensions. Later all these symptoms become more marked with the appearance of dermatitis.

Among the nervous symptoms are, hideous dreams, darting pains in different parts of the body, an uneasy feeling, restless, want to do something and you don't know what it is and inability to concentrate the mind.

The digestive symptoms, loss of appetite, gaseous eructations, flatulence and in many cases diarrhea, although in my experience, the majority have chronic constipation.

The dermatitis usually appears on the back of the hands first; later to the neck and face, on the forehead,around the nose and finally to the lower limbs and dorsal vertebra, sore mouth, pyrosis, the eye sight and the olfactory nerves are often involved, very peculiar odors, undescribable and in fact various and all kind of symptoms that we never read of, may appear.

Prognosis: As to a complete cure I do not believe it is very often accomplished. A great majority of cures we read of are patients that were treated in institutions, in clinics, or by private physicians, where the patient was dismissed cured and passed from under their observation and there was no follow up. If all these poor creatures could be followed up for a number of years I think you will find a goodly number that from five to ten years you will find a reappearance of the disease, may be that it will be mild and with proper care can be carried through several years of useful life and die with some other disease. However, I believe the majority of cases can be held in check with the proper care and treatment.

If one gets insane I think, as a rule, the cake is dough and there is nothing to do but wait for death.

Prophylaxis. So far as prophylaxis is concerned, until we find out the cause of pellagra there is very little to be done that will avail any thing.

Treatment: I believe that it is pretty well conceded that there is no specific treatment, and that has been my experience.

Some claim that medicine does not avail anything; this I do not exactly agree with. I think that a great deal of good can be accomplished with the use of proper drugs. The doctor that treated me gave me the following, which I have used to some extent myself.

R Arsenous acid gr. 1
Ext. Nux. Vom. gr. iv
Ferri. Carb. 3ss—half dram
Ext. Cassara 31—one dram
Quinine Hydrobromate 31ss—one and half
Ichthyol (pure) 3111—3 dram
M.ft caps No. XXX

Sig: One capsule 20 minutes after meals and one at bed time. If there is a diarrhea you can leave out the cascara and in severe cases make this amount into 20 capsules and give the same way.

I have used Fowler's Solution in heroic doses to a good advantage.

Dr. Page of North Carolina, that I mentioned above, thinks that ichthyol in heroic doses is a specific, he gives it in doses from 10 to 100 grs., with strychnine.

As to the diet I don't attach any more to that than I do in treating tuberculosis or any other wasting disease. Of course we want a well balanced diet that is easily digested and well assimilated. Leave off all peppers, and all slumgullions in the way of highly seasoned salads, pastries and pudding. Avoid all exertion, have plenty of rest and keep out of the hot sun.

Some one will say, "O, it has been proven that the balanced diet is a cure." I say it has not, any more than it has in the cure of tuberculosis. We all know you can take a great many tuberculous cases that are pretty well advanced, put them to bed with perfect rest, sunshine, fresh air, and a well balanced nourishing diet, that is easily digested and assimilated, and effect a cure in a good many cases if it is kept up for a long period, with very little medicine.

Well, I suppose I have floundered around about long enough, so will buzz off. I told you in the beginning, that I knew nothing about pellagra, and now I hope I have proven it to you.

Now if any of you know some established facts about this trouble or if you choose to shoot this paper full of buck-shot, you may let us have it. I thank you.

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**To See Where We Are.**—I sometimes wonder if it would help us to close up the laboratories for a while, to hand over the wards to our juniors, and to get together and to try to see where we are. Perhaps we could then marshal our facts—clinical, immunological, and morbid anatomical—see where the gaps are, and begin to make more concerted effort to fill them. Having done this we might try to dissociate and combine them by deliberation and some constructive thought. The truth is, although science never offered us so many new facts before or so many new instruments for possible exploitation in therapeutics, we seem for the time being less capable than we were of making use of them, except, as I have said, by way of direct action. But the proper adaptation of scientific discovery to therapeutics requires the careful application of physiological principles and a knowledge of the deviation from the physiological that constitute disease. This involves indirect action, which does not fit with the spirit of the times.—Horder, Lord: Annual Oration on New Treatments for Old, Brit. M. J. 1:859 (May 20) 1933.

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# UNDULANT FEVER*

EUGENE W. DEMAREE, B. S., A. B. M. D.

Wonsan, Korea.

UNDULANT FEVER: Synonyms: Malta Fever, Mediterranean Fever, Melitensis septicaemia, Melito-coccemia, Bruce's septicemia, Goat Fever, Mountain Fever, Slow Fever, (Texas), Gibraltar Fever, Rock Fever, Neapolitan Fever, Cyprus Fever, Mediterranean Phthisis.

DEFINITIONS A specific fever due to the Brucella Melitensis, characterized by septicemic manifestations, and showing extreme variations in the course and symptoms.

HISTORY: From the cases of protracted fever described by Hippocrates, it is probable that Undulant Fever was known as far back as 400 B. C., and perhaps earlier. It is certain that the disease has existed along the shores of the Mediterranean for many hundreds of years.

The present day history might be said to date from the latter part of the eighteenth century, when attention was drawn to it on account of the sudden occurrence of a large number of cases in Malta.

The first accurate description, clinically, was given by Marston in 1859, and published in 1861 at which time he differentiated it clinically and pathologically from both Typhoid and Typhus Fever. He emphasized its outstanding characteristic in these words; "There is no fever so irregular as this in its course and symptoms." It was recognized and described by many other workers but nothing more definite was discovered until December 1886, when Bruce found minute organisms in the spleen from a patient who had died of Undulant Fever. This organism he called Micrococcus Melitensis, and succeeded in reproducing the disease in monkeys by inoculating pure cultures of the organism.

During the past five years, there has been a sudden increase of interest in this disease, and cases have been reported from every State in the Union, each province in Canada, and practically every country in the world.

ETIOLOGY: The causative organism is the Brucella Melitensis. Its shape varies from the coccoid form, found in tissues, to a small bacillus form which develops in cultures. It measures 0.5 mm. or less, occurring singly or in pairs, though in cultures short chains are found. It is non-motile, non-encapsulated, and gram negative.

Culturally, it does not ferment glucose, renders milk slowly alkaline, does not liquify gelatine, redden litmus milk, or produce Indol, and produces no odor in broth cultures. Small and transparent colonies are produced on agar or potato media, incubated at 37° C., growing at a slow rate and requring three to four days to appear.

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*Read before the Boyd County Medical Society at Ashland.

The following varieties are recognized:

I. Brucella Melitensis, variety melitensis.
II. Brucella Melitensis, variety abortus.
  (a) Bovine strain.
  (b) Porcine strain.
  (c) Caprine strain.

The natural habitat of the melitensis variety is in goats, and of the abortus type in cattle and pigs. Each of these types may produce the disease in man, or in other animals, with varying degrees of virulence.

The recognized modes of infection are: By the alimentary canal and contact, which are the more common; and by the respiratory system, direct inoculation, and sexual intercourse, which are more rare. Though the organisms have been found in the stomachs of insects, it has not been proven that they are transmitted through their bites.

Epidemiology: In the Mediterranean region where most of the early work was done, the disease was almost eradicated following the prohibition of the use of raw goat's milk. This was followed by a close study of the outbreak in Phoenix, Ariz. in 1922, at which time the infection was traced to the same source. It was only recently that other sources of the infection were found, though it is at present believed that in America, cattle and hogs infected with Brucella Melitensis are the chief source of infection, though in Texas, New Mexico and Arizona the evidence still points to the goat.

In the United States the first case outside of Texas, Arizona and New Mexico was reported in 1922, following which the number of reported cases has increased year by year to more than a thousand.

Outside the United States, Bevin of Rhodesia, in 1921 first called attention to cases of Undulant Fever probably related to cattle with contagious abortion and four years later reported a total of thirty-five cases. Since that time numerous other reports have been made of cases unrelated to goats but related to cattle with contagious abortion. In Denmark during the first year in which a study was conducted, 222 cases were diagnosed. This emphasizes the necessity for study and invetigation. Many nations have appointed commissions for study of the disease.

The disease is contracted by the use of raw dairy products from infected animals, contact with the animals or the handling of infected meat. In one series 22% of infected cows were found to excrete the Brucella in milk. In many localities the infection has been proved in animals, without proof of the infection in man, indicating a high rate of immunity. In Denmark, Brucella was found only in cattle, none in goats. Calves do not get the infection until reaching the breeding age.

The White House Conference on Child Health and Protection concluded that pasteurized milk was safe from Brucella infection (1930). Experimental studies tend to show that the porcine strain is the most resistant, requiring heating to 140° F. for 40 minutes.

Age Incidence: The majority of cases occur betweene 20 and 40 years of age. Children are not immune, and the organisms have been isolated from a human fetus. One case has been reported in a child seven months of age.

Pathology and Morbid Anatomy: The germ usually enters the system by way of the alimentary canal, rapidly finding its way through the wall into the blood stream. A true septicemia follows. The organisms are found in the blood, urine, stool, milk, and vaginal discharges as well as in the various organs of the body. Infection in the uterus is thought to produce abortion in women.

On post-mortem examination the following changes have been found: Spleen enlarged, softened and congested. Liver, cloudy swelling and interlobular round cell infiltration. Alimentary canal, congestion and at times ulceration in the colon. Lungs congestion at the bases, and at times patches of consolidation.

One case of hemolytic jaundice is assumed to have been due to the infection. In another multiple muscular atrophy coming on nine months after infection. In another case bone lesions were demonstrated.

Gregersen and Lund conclude that the pathologic changes in man are characterized by pronounced enlargment of the spleen with follicular atrophy, marked hyperplasia of the pulp and oversupply of blood; scattered foci of granulation tissue of simple type in the organs; parenchematous degeneration in the organs presumable due to the toxic effect of the infection.

Symtomatology: Incubation: Ten to fourteen days in man. Experimentally in monkeys fifteen days.

Onset: The onset may be sudden, but most commonly it is insidious so that several months may elapse before a physician is called. The average is four weeks. In a series of 125 cases the following symptoms were noted.

75 — 100%: weakness, sweating, feverishness, and chilliness.

50 — 75%: Headache, anorexia, constipation, and loss of weight.

25 — 50%: Rigors, general aching, backaches, arthralgia, abdominal pain, nausea, and insomnia.

Less than 25%: Vomiting and sore throat.

Of the early symptoms, weakness was the most common. The early writers stressed "arthralgia," but present statistics indicate that it is present in less than one-third of cases, and severe in less than five per cent.

Course: There are extreme variations in the course of the disease. Some cases are reported as lasting less than three weeks and others more than three years. One case is reported in which a diagnosis has been made serologically after an illness of more than eight years. The average duration of the illness seems to be about four months, with about six weeks of this time spent in bed. As a rule, the more acute the case, the more rapid the convalescence and the shorter the course of the disease. The greatest duration is found in the ambulatory cases.

There is a great variation in the appearance of patients with Undulant Fever. The majority do not appear sick, at least not in the degree that the clinical findings would indicate. They seem fairly comfortable, mentally alert, and ready to talk. This is in distinct contrast to the dullness and apathy so characteristic of Typhoid. Pallor and fatigue may be noticed, especially late in the course, when there has been loss in weight and progressive anemia.

Temperature: This shows variations within wide ranges depending on the severity of the particular case. During the height of the febrile period the usual morning temperature is normal or not over 99° F. The usual evening temperature is between 100 and 102° F. There are cases on record of proved infection in which the maximum temperature was less than 100° and others in which it was over 106° F. Undulating temperature curves with periods of apyrexia are not the rule. The usual type of temperature curve shows a regularly remitting fever terminated by slow lysis.

Pulse: The pulse rate either corresponds with the temperature curve or is nearer normal.

Examination: Examination of the head rarely reveals any abnormality. In the chest rales and bronchi may be heard (15%). The cardiovascular symptoms of many varieties are reported, though their presence is most often considered concurrent. Enlargement of the spleen can be felt ordinarily only on deep inspiration (30%). Enlargement of the liver is occasionally found (10%).

Blood Examination: There is commonly a secondary anemia which may be slight or marked in prolonged cases. Hemoglobin may be reduced to 60% or less with a corresponding decrease in the red blood cell count. As a rule there is a moderate leukopenia, the white cell count usually showing four to six thousand cells, with both an actual and relative decrease in the percentage of polymorphonuclear leukocytes, usually 50% or less. There is a relative increase in the number of large mononuclear cells, and a slight increase in the small lymphocytes, while eosinophiles and basophiles remain unchanged.

Agglutination Tests: Up to the present time it has not been possible to determine at what period in the disease the agglutination test becomes positive, on account of the relatively late diagnoses that are usually made. An agglutination titer of 1:80 is generally considered diagnostic, while 1:40 is classed as doubtful. The use of intradermal tests has been reported with good results.

Blood Cultures: With expert care and sufficient incubation, blood cultures appear positive in a large percentage of cases. A successful procedure demands a suitable medium, prolonged incubation, and in some instances an increased $CO_2$ tension.

Diagnosis: Practically every case, early in its course, has been given a diagnosis other than Undulant Fever. Other diagnoses in the approximate order of their frequency are: Typhoid, Paratyphoid, Influenza and Intestinal Influenza, Tuberculosis, Malaria, Sepsis from Teeth, Pneumonia, Appendicitis, Cardiac disease, Dyspepsia, Cholecystitis, sinusitis, wound infectons, liver abscess, tubercular peritonitis, septicema, pyonephrosis and even, "Nervous breakdown, Rundown, Liver trouble, Eye trouble and Nephritis and low blood pressure.."

At the present time, most of the cases which have been proved to be Undulant Fever were diagnosed during the routine agglutination tests conducted by workers interested in the disease. The variability of the signs and symptoms, together with the difficulty of diagnosis in the absence of agglutination tests, emphasize the importance of a clinical consideration of Undulant Fever, and the necessity of laboratory cooperation.

Prognosis: In view of the extreme variability in the severity of symptoms and duration of the infection, prognosis must be somewhat guarded. Most fatalities seem to appear in the so-called Malignant cases with rapid decline, and severe symptoms. The mortality appears to be about 3½%. Four deaths in 125 cases reported in one series in America (24) and 77 deaths in 2229 cases in the Malta Garrison during the years 1898-1904. (Osler).

Treatment: I. General measures should be employed, similar to those advocated in Typhoid Fever. The usual drugs may be employed for symptomatic relief.

II. Specific Drug Therapy: Many drugs have been advocated as having a specific action, by as many authors. Each seems to give good results in the hands of the author, and poor results in the hands of others. Among these may be mentioned:

Mercurochrome 220 Soluble, given intravenously in doses of 0.1 to 0.22 gram, usually in 1% solution.

Acriflavine HCl, given intravenously in doses of 0.1 to 0.4 gram. One author reports five out of seven cases cured in less than a month's time.

Trypaflavine given intravenously in doses of 0.1 to 0.4 gram.

Among other drugs mentioned are the arsphenamines, quinine, mercurials, foreign protein reaction therapy, etc.

III. Autogenous antigen treatment proved successful in a number of cases, resulting in definite cures or shortening of the course of the disease.

IV. Autogenous and stock vaccines also have their advocates.

Control: Two methods of control are generally advocated: Human immunization, and immunization of animals and pasteurization of dairy products.

Vaccination of humans has beeen tried, and extensive research studies conducted along this line at the Pasteur Institute in Paris, and very favorable results are reported.

Gwatkin, in America, has shown that animals may be successfully vaccinated against the disease by the use of attenuated organisms. Those animals that have already contracted the disease, especially goats, are seldom cured. Many animals may harbor the disease and excrete the organisms in the milk without showing any physicial signs of the disease. Ordinary pasteurization seems effective against all but the porcine strains, so that this method may be used in all dairy products.

### Case Report

Miss M. M., age 39, Canadian. Family history negative. Usual childhood diseases without severe illness or complications. Came to Korea in January, 1929.

First week in June, 1930, the patient noticed an afternoon rise in temperature not exceeding 99.2° F. with an accompanying increase in the pulse rate. Was examined by a number of physicians whose findings were negative except for inconstant rales heard over varying portions of the lungs. Repeated sputum examinations were negative. X-rays of the chest showed slight increased density at the hilus and "old scars." She was kept on tubercular regimen until April 10, 1931, when she came under my care, and diagnosis of Undulant Fever was made and confirmed. A temperature record covering 20 months shows a febrile period of seventeen days and afebrile of seven to eleven days. The curves have gradually altered until now there are three days of fever every 25 days, maximum being 99.4° F. Exercise has no influence on the temperature curve. General health is now rapidly improving. No treatment has been given.

This is believed to be the first case reported from Korea. Two cases of undulant fever in cattle have been reported.

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## BOOK REVIEWS

EGGS, WHEAT OR MILK FREE DIETS, RECEIPTS AND FOOD LISTS. By R. M. Balyeat, M. A., M. D., F. A. C. P., Associate Professor of Medicine and Lecturer on Diseases due to Allergy, University of Oklahoma Medical School; Director Balyeat Hay Fever and Asthma Clinic; Assisted by E. M. Buster, M. B., M. D., and Ralph Bowen, B. A., M. D., J. B. Lippincott Company, Philadelphia, Publishers. Price $2.50.

Doctors and patients alike have found it difficult in removing wheat, eggs or milk from the diet. This book gives lists of foods that wheat, eggs or milk go into and assembles recipes which are wheat-free, egg-free and milk-free. It has been arranged to assist physicians and dietitians in the selection of food lists and menus for wheat, egg or milk sensitive patients and to make easier the task of those who actually prepare their diets.

It gives the role played by food in allergic diseases; asthma; hay fever; migraine; urticaria; eczema; gastro-intestinal symptoms due to food; symptoms due to food sensitization; vertigo; epilepsy; arthritis; pruritus; bladder irritation and methods of testing for food sensitization. Showing the types of food-sensitive patients, wheat sensitive, egg sensitive, milk sensitive, and wheat and milk sensitive.

Under suggested recipes for wheat, egg or milk sensitive patients are those that are egg-free, wheat-free. Recipes containing no milk or eggs, no wheat or eggs; no wheat or milk; no wheat, eggs or milk.

Chapters on body food requirements; food values; special diets; food lists; height and weight tables; and removable food dietary lists covering every day for four weeks.

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**NEXT MEETING MURRAY**

## COUNTY SOCIETY REPORTS

**Mason:** A tuberculosis diagnostic clinic was held Wednesday and Thursday, the 12th and 13th of April at the office of the Mason County Health Department under the auspices of the Mason County Medical Society. Drs. A. R. Carringan, W. E. Hord, C. V. Stark, with the secretary, composed the Committee on Arrangements. Dr. Paul A. Turner examined 32 patients at the office, in addition to seeing 8 or 10 private patients at various doctors' offices and in the homes. Practically all the physicians of Maysville visited the clinic during the two-day session. Dr. L. E. Smith and Dr. Wallace Frank came on Wednesday afternoon and, together with Dr. Turner, gave the Society an extremely interesting program at the regular meeting Wednesday night. This was illustrated with X-ray films and moving pictures. Dr. Frank performed two operations at the Hayswood Hospital, which was witnessed by the surgeons of Maysville and all felt like they had received a great deal of instruction therefrom. Arrangements have been made with Dr. Smith to return to Maysville the second week in May and lecture to the various civic clubs, in addition to being on the program of the Medical Society, Wednesday, May 10.

ALLEN F. MURPHY, Secretary.

**Allen:** The annual meeting of the Allen County Medical Society was held March 2, 1933, in Scottsville, with a good number of doctors present.

After a round table discussion on Eclampsia and its treatment, we then proceeded to elect officers for the ensuing year, as follows:

C. A. Calvert, President.
L. Graves, Vice-President.
A. O. Miller, Secretary-Treasurer.
G. R. Keen, Delegate.
H. M. Meredith, A. G. Cosby, and W. E. Willoughby, Program Committee.

The Society adjourned at 3:30 P. M., to meet March 29, 12:00, at the Jacksonian Hotel for luncheon and other business.

A. O. MILLER, Secretary.

**Grant:** The Grant County Medical Society met at the office of the Health Department in Williamstown, April 19, 1933, with the following members present, Drs. J. J. Marshall, J. W. Abernathy, J. L. Price, A. D. Blaine, C. M. Eckler, N. H. Ellis, C. D. O'Hara, and C. A. Eckler.

Visitors present were Drs. Ed and Joe Northcut, J. C. Renaker, L. C. Hafer, and Elmer De Villez of Covington, Ky.

The minutes of last meeting were read and approved and correspondence from Perry County

Society and one letter from Dr. McCormack, our State Secretary, were read before the Society and acted upon, and as there was nothing to discuss at present of a business nature we now entered into the topic of the evening, "Intra-Cranial Hemorrhage in the New-Born Babe," which was handled in a masterly way by Dr. L. C. Hafer, Child Specialist, of Covington.

Dr. Hafer's talk was profoundly interesting from the start. He brought out statistics to show this condition to be an alarming cause of deaths in babies occurring in the first week. We had all seen babies die in the first seven days after birth and sometimes, yes, frequently, were at sea to know the cause of death.

He showed that he was master of his subject and the clear, forceful delivery of it held us spellbound. He illustrated his points by a drawing of the anatomy of the parts which he had pinned on the wall. We thank Dr. Hafer for this excellent paper and invite him again at any future meeting he wishes to attend.

Dr. J. C. Renaker opened the discussion and cited a cure which Dr. Hafer had made for him by passing a delicate needle at the base of the skull and drawing off this bloody serum. He stated that the child was now past three years of age and hale and hearty.

Ed Northcutt stated that a spinal puncture might have to be made lower in a baby than in an adult as the cord extended lower.

J. J. Marshall says he has not seen so many in his country practice, and believes city women have more trouble in delivery than the country women and this might cause the hemorrhage.

J. L. Price congratulated the essayist and says he can't recall a case of hemorrhage in the new born in his practice.

C. D. O'Hare reported hemorrhages from other sources as vagina and rectum that he has had in new-born babes and congratulates the essayist.

A. D. Blaine recalls about four or five cases in his practice.

Joe Northcutt and Dr. Villez also made talks which were interesting.

C. M. Eckler does not like pituitrin in his practice.

J. W. Abernathy and C. A. Eckler also reported cases of this nature.

Dr. Hafer, in closing, contrasted the city and country life of women, showing how the city life of women made delivery harder for them. He closed his remarks by answernig questions as to the condition existing in this disease.

At this time Dr. Marshall arose and gave our friends in Covington a special invitation to come out and see us often as we would be ready to assure them an open door at any time.

Joe Northcutt will read a paper at the next meeting to be announced, later.

We now adjourned to meet the third Wednesday in May at the usual hour.

C. A. ECKLER, Secretary

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**Letcher:** The Letcher County Medical Society had a fairly enthusiastic meeting Tuesday night, April 25, here in the Daniel Boone Hotel. Dr. and Mrs. R .L. Collins and Mrs. Snyder of Hazard were the guests of the Society. Dr. Collins is very interested in getting the medical societies to use their influence in getting more appropriation for the hospitalization of the indigent at the 1934 session of our General Assembly.

There were twelve physicians present including Dr. R. L. Collins.

R. DOW COLLINS, Secretary.

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**Nicholas:** The Letcher County Medical Society ciety met on March 30, 1933 and elected the following officers.

T. P. Scott, Secretary .
B. F. Reynolds, President.
L. K. Swango, Delegate.
H. H. Buntin, Alternate.

T. P. SCOTT, Secretary.

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**Calloway:** The Calloway County Medical Society held its annual meeting the night of Feb. 7th and elected new officers as follows, for 1933.

President, J. A. Outtond.
Vice-President, E. D. Houston.
Secretary-Treasurer, W. H. Graves.

W. H. GRAVES, Secretary.

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**Scott:** Meeting of the Scott County Medical Society was called to order at 8:30 P. M., March 31st, 1933, by Vice-President Cull. The following members of the society were present: Crutchfield, Heath, Sanford, Barlow, Caudill and Drs. Allphin and Johnson came in late. Visitors were Dr. A. T. McCormack and Dr. P. E. Blackerby of Louisville. Dr. McCormack was introduced immediately to make his talk on the Committee Report on "The Costs of Medical Care." This talk was intensely interesting and very instructive of the medical tendencies of the day.

The discussion was opened by Dr. Cull who asked several questions suggested by Dr. McCormack's talk. Dr. P. E. Blackerby in his discussion spoke at length about the far better qualifications of the modern family physician with his opportunity for rendering more complete and effective service as contrasted with the old-time family physician. Dr E. C. Barlow spoke at length on what is needed to make complete the medical service to a community and at the end of his discussion offered to the Society the following motion: Moved that the Scott County Medical Society recommend and urge that the appropriation from the Fiscal Court to the Scott County Health Department and the John Graves Ford Memorial Hospital be continued the same, because the present economic conditions have made far greater the need for the prevention of disease and the relief of human suffering. The motion was seconded and passed unanimously by those present.

Reading of the minutes of last meeting, minutes adopted.

A letter was read from the Secretary of the Perry County Medical Society asking for the cooperation of the Scott County Society in a campaign to get the State Legislature to appropriate $75,000.00 to the State Tuberculosis Hospital at Hazelwood so that all the eighty-two beds in that institution can be made free and available to the impoverished tuberculous patients of the state as a further aid to the cure and control of this disease. Along with this the Perry County Society also, asked for our support in a campaign to get the Legislature to empower the State Board of Health to borrow $250,000.00 from the Reconstruction Finance Corporation to erect a Preventorium for the care and protection of potentially tuberculous children, this institution to be maintained by the State.

It was moved that we cooperate with the Perry County Society in this effort. Motion seconded and passed unanimously by those present.

E. W. CAUDILL, Secretary.

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**Harlan:**. Resolution introduced and unanimously adopted by the Harlan County Medical Society at its regular scientific meeting on Saturday, April 29, 1933:

We, the members of the Harlan County Medical Society, knowing what brilliant and noteworthy contributions and discoveries Jews of Germany have made at all times in the medical and related sciences, view with regret, protestation, and contempt the alleged discriminating outrages and atrocities which of late have been and which at the present moment are being perpetrated against the Jews of Germany generally and the German Jewish physicians and scientists in particular as a direct result of the Hitler program, propaganda, and government; we, deeming such discrimination and atrocities, if true, and if instigated by governmental authority, as being unjust, undeserving, a reversion to mediaeval barbarism, and detrimental to every good.

Be it therefore, resolved, that this protest be spread upon the minutes of this society and a copy of this resolution sent for publication in the Kentucky Medical Journal or for the attention of any other body which this matter may concern.

Scientific Program:

Dr. Charles N. Kavanaugh of Lexington, "Treatment of Congestive Heart Failure."

Dr. Rufus C. Alley of Lexington: "Rectal Diseases in General Practice with Remarks on Non-Surgical Treatment of Hemorrhoids."

CLARK BAILEY, Secretary.

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**Grant:**. The Grant County Medical Society met at the office of the Health Department at Williamstown, March 15, 1933, with the following members present: Drs. J. J. Marshall, C. D. O'Hara, A. D. Blaine, J. L. Price, C. M. Eckler, and C. A. Eckler. In the absence of the President, J. W. Abernathy, the Vice-President, A. D. Blaine, presided at the meeting.

The minutes of the last meeting were read and approved and there being no communications or correspondence, the usual reports of interesting cases occurring since our last meeting were discussed, and were indeed interesting.

We now took up the topic of the evening which was a paper on "Gynecology," read by Dr. C. A. Eckler, on new theories and treatments as were being used in Buffalo, New York, at the present day. He went into the newer views on menstruation, amenorrhea, cervical infections, lacerations, giving the new and up-to-date treatment applicant in each case, with diathermy, and cautery, stressing the importance of the rough examinations in all cases and showing how these cases can be treated in the office of the general practitioner as well as to take them to a specialist. He took up the subject of backache that are so burdensome to women at the present day, going into the causes thoroughly and showing the treatment applicant in each case. The paper was discussed by all present and while a great many of the members were absent we all enjoyed the meeting and felt that it was good that we should exchange our views on this all important subject. We adjourned at a late hour to meet the third Wednesday evening in April at 7:30 P. M. The topic for next time will be announced later.

C. A. ECKLER, Secretary.

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**Bourbon:** The regular meeting of the Bourbon County Medical Society was held at the Court House, March 23, 1933.

The meeting was called to order by Dr. C. G. Daugherty, the president.

The following members were present: Drs. C. G. Daugherty, Jas. A. Orr, G. L. Rankin, B. M. Pittinger, Wm. Kinney, Wilson G. Daily, H. M. Boxley, J. C. Hart, Frank O. Alexander and W. B. Hopkins. The following visitors were present: Drs. Rufus C. Alley, W. O. Bullock and

Milton J. Stern of Lexington, Ky. Drs. T. P. Scott and B. F. Reynolds of Carlisle, Ky.

Dr. Rufus Alley read an interesting paper on "Rectal Diseases in General Practice." The paper was discussed by Drs. Scott, Orr, Daugherty, Boxley, Hopkins and in return the essayist.

There being no further business the meeting adjourned.

W. B. HOPKINS, Secretary.

**Breathitt:** The following are officers of the Breathitt County Medical Society for the year 1933:

Wilgus Bach, Jackson, President; Boyd Caudill, Vice-President; O. M. Goodloe, Secretary and Treasurer and Delegate to State Meeting.

Hereafter the meetings will be held the third Tuesday each month.

O. M. GOODLOE, Scretary.

## NEWS ITEMS

Charles M. Edelen, M. D., announces the removal of his office to Suite 716 Heyburn Building. Practice confined to general surgery. Louisville.

Dr. Harry Goldberg announces the removal of his office for the practice of Orthopedic Surgery and Fractures to 411-412 Breslin Building, Third and Broadway, Louisille. Hours: 2:00-4:00 P. M., and by appointment. Phones: Office, Wabash 1868, Residence, Jackson 0919.

## BOOK REVIEWS

TEN YEARS OF OBSTETRICS AND GYNECOLOGY IN PRIVATE PRACTICE By John L. Rothrock, A. B., M. D., F. A. C. S. Formerly Associate Professor of Obstetrics and Gynecology, University of Minnesota; Former Member of the Miller Clinic and Chief of the Obstetrical and Gynecological Services of The Charles T. Miller Hospital and The Amherst H. Wilder Dispensary, St. Paul, Minn. 8vo, Cloth, 222 Pages, 9 Illustrations, Net $3.00.

Paul B. Hoeber, Inc., Publishers, 76 Fifth Avenue, New York, N. Y. Publishers of The American Journal of Surgery; Annals of Medical History; Annals of Roentgenology; Clio Medica, etc.

The contents of this book are summarized as follows:

1. It is a clinical report and not a treatise on obstetrics.
2. It is an individual report, and the material from which it has been compiled was derived exclusively from private practice. One of the main objects of the report was to derive some figures for comparison with those of similar reports compiled from public hospitals. In this respect it is unique.
3. The assembling of groups of the more important conditions as met with in obstetrics and gynecological practice for critical analysis has furnished figures of considerable value, in as much as in many instances figures are not available from other sources.
4. The inclusion of detailed case histories, with special emphasis laid on the clinical symptoms as observed at the bedside with a discussion of the more important clinical phenomena of the various groups. In addition the inclusion of reports of a few cases heretofore unpublished.
5. A detailed description of the methods in dealing with complications as they arose and the results obtained by the treatment.
6. A statistical summary which greatly facilitates reference to the figures which appear scattered through the text. The statistical summary should be of particular interest to the specialist and the clinical discussion of the various groups should be of great practical value to 'the student and general practitioner, as the more important conditions met with in practice are considered at some length.

THE SURGICAL CLINICS OF NORTH AMERICA. (Issued serially one number every other month.) Volume 13, No. 1. (Pacific 'Coast Surgical Association Number—February 1933) 247 pages with 90 illustrations. Per Clinic Year (February 1933 to December 1933) Paper, $12.00; Cloth, $16.00 net. Philadelphia and London: W. B. Saunders Company, 1933.

The clinics in this volume have been contributed by 'fellows of the Pacific Coast Surgical Association which is composed of the surgeons living in California, Oregon, Washington, British Columbia 'and Hawaii.

THE HISTORY OF DERMATOLOGY. By William Allen Pusey, A. M., M. D., L. L. D., Professor of Dermatology Emeritus, University of Illinois. Sometime President of the American Dermatological Association and of the American Medical Association. With 33 illustrations. Charles C. Thomas, Springfield, Illinois, Publishers. Price $3.00 postpaid.

The author has the honor of writing the first history of Dermatology in English and has given to the profession a very erudite and interesting book. In reciting the story of the development of this branch of medicine facts dating from the ancient Egyptian and Babylonian have been given. This volume is beautifully printed and illustrated. It tells the story of Deratology from 300 B. C. to the present. The incorporation of an historical index, replete with factual data adds greatly to the value of the book.

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# KENTUCKY MEDICAL JOURNAL

Published Monthly by the Kentucky State Medical Association Under the Supervision of the Council

VOL. 31. No. 8 BOWLING GREEN, KY., AUGUST, 1933

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Entered as second-class matter, Oct. 22, 1916, at the Postoffice at Bowling Green, Ky. Acceptance for mailing at special rates postage provided for in section 1103, act of October 8, 1917, authorized May 25, 1920.

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*Dr. Dean Lewis,* of The Johns Hopkins Medical School, has written the *Foreword.* Both B. N. A. and the Anglicized terminology are given. This is indeed, a handsome book—and *decidedly clinical.*

Large octavo of 1115 pages, with 1280 illustrations, some in colors. By C. LATIMER CALLANDER, A. B., M. D., F. A. C. S., Assistant Clinical Professor of Surgery and Topographic Anatomy, University of California Medical School. Foreword by DEAN LEWIS, M. D., Sc. D., LL. D., F. A. C. S., of The Johns Hopkins Medical School.
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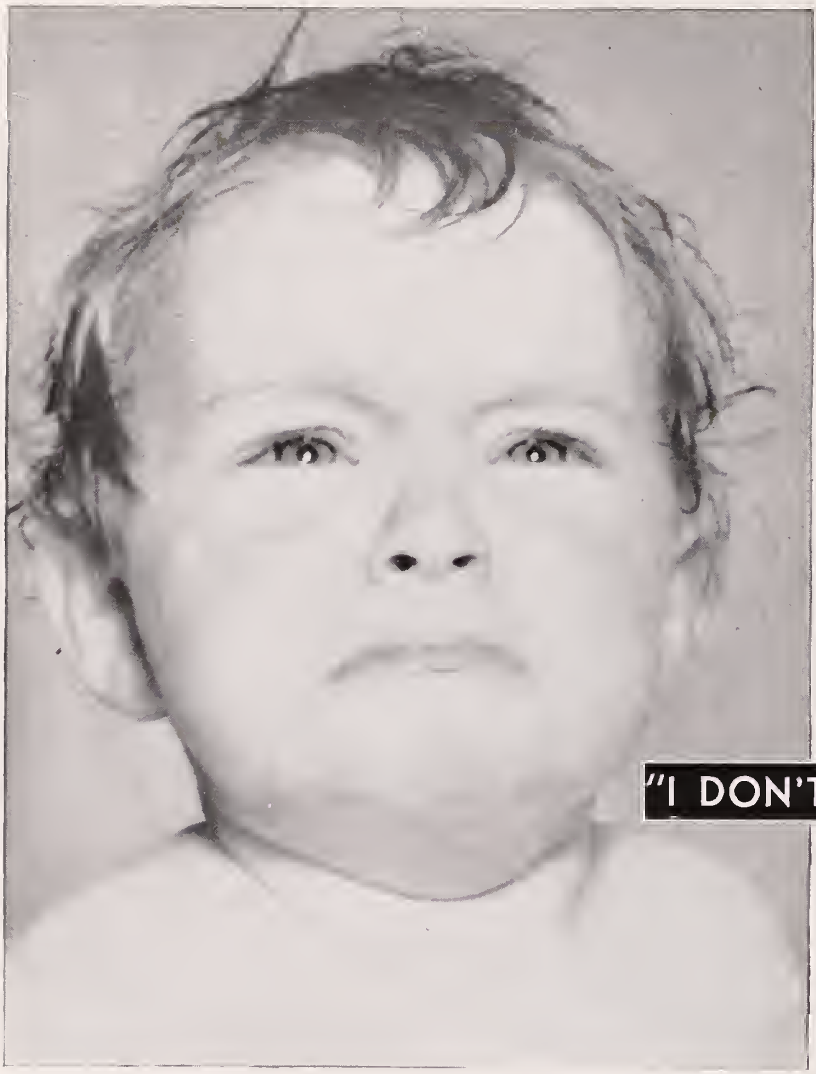

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[1-3] *Bibliography on request.*

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# KENTUCKY MEDICAL JOURNAL

BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

Published Under the Auspices of the Council

VOL. 31 No. 8 BOWLING GREEN, KY. AUGUST, 1933

## DRY CLINICS

With the co-operation of the splendid profession of Calloway County, Doctor George A. Hendon, Chairman of the Committee on Scientific Work, has arranged for an innovation that will be of great interest to the members who attend the Annual Session at Murray. Dry Clinics will be held at the local hospitals on Tuesday and Wednesday mornings, September 12th and 13th, from 7:00 A. M. to 8:30 A. M. This form of instruction has proven of such great value in medical societies all over the country that we are all looking forward to its introduction in our State programs with a great deal of interest.

The program for the State Meeting is about complete and in this issue we present the preliminary announcement so that our members may know what an intellectual feast is being provided for them at Murray.

The meeting this year promises to be of unusual interest. The Editor has been in most of the counties of the State with in the last few months and President Barbour has visited more county societies than any of his predecessors heretofore have been able to do. Everywhere we have heard of preparations for attending the meeting in Murray. Many of the doctors will drive on the excellent highways and become acquainted with Western Kentucky. The dormitories are adequate for all those who attend and the expenses will be only $2.00 per day per person.

The Annual Meeting this year promises to be of tremendous importance both to the profession and the public and we believe it will be found worth-while by every physician who can possibly arrange to be present.

## EYE, EAR, NOSE AND THROAT SECTION

This issue of the JOURNAL is devoted to the scientific proceedings of the Section on Ophthalmology and Otolaryngology of the Kentucky State Medical Association, which was held this year on the 15th of May in Paducah.

Those who were present reported the usual enthusiasm and good fellowship, although the attendance was somewhat smaller than usual. The guest speaker was Dr. Lee Wallace Dean of Washington University, St. Louis. Dr. Dean's lucid and interesting exposition of various subjects of interest to Otolaryngologists was said to have amply repaid those in attendance for the trip to Paducah.

The retiring president, Dr. Cowley of Berea, selected "Mastoiditis" as the subject of his address; and Dr. Dean delivered an unusually valuable discourse on "The Diet in Otolaryngology."

The officers elected for the ensuing year were: S. B. Marks, M. D., Lexington, President; A. L. Bass, M. D., Louisville, Vice-President; Carlton Thomas, M. D., Lexington, Secretary; Walter Dean, M. D., Louisville, Treasurer.

Every physician in Kentucky is interested in the work of the Section on Ophthalmology and Otolaryngology. Many of their studies and recommendations are of interest to the general practitioner, who usually sees these cases first and who has the responsibility for determining whether he will treat them himself or refer them to those who limit their practice to this specialty. For this reason we feel that this issue of the JOURNAL will be of special interest to every one of its readers.

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Each month the JOURNAL enters the offices and homes of the great majority of physicians in the State. It is probably within the mark to say that three-fourths of the entire population of Kentucky are benefited, directly or indirectly, by this monthly message of scientific medicine; for no other profession has personal contact with so varied and inclusive an audience.

The JOURNAL contains the news of all the activities of the affiliated County Societies; its articles represent the composite intelligence of the entire profession. Its editorials and official announcements express the reactions of the profession to the many problems constantly arising in this rapidly changing age. Its columns are open to every member for any expression of opinion. It is the literary "Hyde Park" of the profession.

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## SCIENTIFIC EDITORIAL

### DETACHMENT OF THE RETINA

Perhaps no subject has ever created more interest, and enthusiasm among ophthalmologists than has the surgical treatment of detachment of the retina. The wide-spread interest which is at present being manifested in the operations designed to reattach the retina after it has separated from its attachment to the choroid can readily be appreciated when one considers that through the means of surgery an affection hitherto looked upon as practically incurable has been placed in the realm of the curable. Whereas we know that detachment of the inner coat of the eye has long been recognized as of rather frequent occurrence, a microscopic study of the relation of the retina to the choroid places beyond comprehension the process that enables the two membranes to remain in close and smooth proximity as they do. Outside of the natural contact of the retina at the optic nerve head, where it may be considered as continuous with the nerve structure, and its contact anteriorly at the ora serrata there is no organic union anywhere between the inner and middle coats of the eye. There is a mere dove tailed contact between the retinal rods and cones and some corresponding depression in the adjacent pigmentary layer, hence the close approximation of the two membranes has been attributed to an intraocular vitreous pressure. The impression prevails that a separation of the retina from its bed can be attributed either to a pressure from under the retina by way of exudation (practically a blister formation) or to a traction from within the eye due to changes in the vitreous adjacent to the retina. Chiefly among the underlying causes of detachment of the retina may be mentioned high degree myopia. Such eyes are nearly always associated with marked changes in the vitreous humor and often also with choroidal changes, either of which could play a part in lifting the retina from its bed hence oculists are always apprehensive of a sudden breaking away of a portion of the retina with resulting sudden blindness in highly near-sighted subjects. Large serous exudations or hemorrhages may likewise be instrumental in lifting a circumscribed area of retina. The same is true of choroidal tumors. A very small percentage of retinal detachments come on in eyes apparently normal without an appreciable cause.

Oculists have always approached cases of detached retina with considerable apprehension as the great majority of them terminated in full detachment and complete and hopeless loss of vision. Occasionaly one reattaches spontaneously and thus restores vision. A very small percentage also yield to conservative treatment consisting of sweat baths, rest in bed, pressure bandage, etc.

Surgical treatment has been applied for the cure of detachment of the retina for thirty years or more. The methods of procedure were nearly all based on the principles of evacuating the sub retinal fluid by approach through the sclera and choroid membranes. The earliest operators did this by performing a posterior sclerotomy over the area of retinal involvement. Early in the present century English ophthalmologist evacuated the fluid by making postequatorial galvano-punctures, sometimes in connection with subconjunctival injections of chemical agents (cyanid).

In 1914 Tiffany in this country employed the trepine, (introduced by Elliott for operation in glaucoma) to bring about permanent subconjunctival drainage. This method was soon adopted by Parker, Thomson, Curtis and others. At about the same time Verhoeff employed sclerotomy along with electrolytic puncture. All of the methods, though they seemed feasible were followed by indifferent results and consequently ophthalmic surgeons were not encouraged sufficiently to urge the employment of surgery in cases of retinal separation. Interest in the surgical treatment was revived in 1927 when Gonin pointed out the frequency of retinal tears in detachments and suggested that operative procedure should be applied with the view of reattaching the retina at the point of laceration. He used for the purpose the electrocautery which he applied through the sclera and choroid as near to the retinal dehiscence as possible. This operation of ignipuncture as outlined by Gonin has been employed by ophthalmic surgeons in all parts of the world but subsequent study of the operated cases show that unfortunately in a large percentage of the cases degenerative changes occur around the point of cautery and that the end results are not very encouraging. To overcome this destructive effect upon the retina Gustav Guist, an Austrain surgeon, introduced a method through which a low inflammatory reaction is brought about at the points of approach, by means of chemical reagents, which would agglutinate the retina and choroid without destroying tissue. The sclera is exposed over the area of detachment by dissecting back the conjunctiva and severing one of the recti muscles. Eight or ten trephine punctures are made through the sclera distributed over the area of detachment. Each opening is cauterized very briefly with potassium hydroxide pencil. After which the choroid is perforated through one of the openings to evacuate the sub-retinal exudate. The muscle is then reattached and the conjunctiva sutured.

These multiple areas of inflammation give a broader and presumably firmer attachment than the electrocautery and offer less insult to the tissues. Thus far many satisfactory results have been reported following the application of these principles and in consequence ophthalmic surgeons are at present in a state of high enthusiasm regarding the efficacy of this operation. Although many failures have also been reported the fact that a relatively larger portion of successful cases always find their way into literature than failures undoubtedly tends to an over enthusiasm. However we are no doubt on the right track and the many recorded successful cases give promise that a safe procedure which will offer at least a fair prospect of relief for those unfortunates afflicted with an ailment which has heretofore been considered practically incurable, will rapidly be developed.

ADOLPH O. PFINGST.

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## SURGERY VS. ELECTRICITY

Electro Coagulation as a method of removal of tonsils is very much in the public mind at present, due to frequent statements in the lay press and to the high pressure sales talks of the manufacturer of the apparatus. The persons interested would have the public believe that it is absolutely safe, efficient, easy to do, entailing no loss of time, no anesthetic, no hospital bills. This is not true. Two articles that have been recently published on this subject disprove all of these contentions. I refer to the articles of J. L. Meyers of Kansas City, read before the Section of Oto-Laryngology, A. M. A., 1932, and the article of Samuel R. Skillern, Jr., read before the American Academy of Ophthalmology and Oto-Laryngology, 1932.

As to its being absolutely safe, in answer to Meyers questionnaire operators reported under complications, "Other complications reported are: infection of the stumps (1), pharyngeal abscess (2), tonsillitis during the period of operation (2), destruction of the pillars (1), a piece of tonsil left in the upper fossa covered with mucous membrane (2), edema of the uvala and pillars (3), peritonsillar abscess (4), cellulitis (3), edema of the larynx (1), postoperative hemorrhage (5), and severe hemorrhage (5)."

As to its being efficient, painless and easy to do. Dr. Balmer stated: "It is possible to have discomfort, secondary hemorrhage, infection, incomplete removal of the tonsils, just as it is with any other method of tonsil removal."

Dillinger states: "I confess that more skill and a better knowledge of throat anatomy are required to do an electro-surgical removal of the tonsil than to do a surgical tonsillectomy."

Skillern says as to pain: "Whoever says that the removal of the tonsils by electrocoagulation is a painless procedure is, in my opinion, twisting the truth to fit his own desired belief. No matter what part of the anatomy is destroyed, or how, it will resent the insult as long as the conscious nervous system is functioning.

The pain is never of the unbearable type, but there is postoperative pain and what becomes often even worse is the apprehension of the following treatment, which may become an actual dread.

Allow me to cite you several authentic cases of the experiment of removing one tonsil and coagulating the other and of tonsillectomy after a partial coagulation.

Two of these cases were anesthetized by novocaine injection. The right tonsil in one patient, the left in the other were removed by snare and dissection. The remaining tonsil was coagulated. In two other cases one tonsil was injected and removed by the LaForce instrument, and the other tonsil coagulated. All four of these cases stated the greatest postoperative pain was in the coagulated tonsil."

Dr. Ridpath, in discussing Skillern's paper, said: "That there may be cases where electric coagulation is preferable to the surgery generally employed, I personally doubt. In my many years of experience, including work in three large hospitals and dispensaries, I have never had a case where indications warranted tonsillar removal that could not be done by a specified surgical technique."

Dr. Austin A. Hayden, Chicago, discussing Meyers' paper said: "My experience in this matter consists of fifteen observed cases in which the patients were not operated on by myself. In these fifteen patients operated on by men who say they understand this method, the results have been little short of disastrous."

The writer has never done any electrocoagulation work. He remembered the results from Pynchon's cautery dissection. He has in a number of cases had to do operations to remove the remnants of tonsils and scar tissue after such work. He has never seen a completely clean throat after this method.

He has seen recurrent abscess formation following this method; Renewed activity in the lymphoid and scar tissue, causing sore throat, difficulty in swallowing, pain radiating to the ears, and chronic hoarseness. Operating to remove these remnants of tissue and the resulting scar tissue is always a more formidable operation than an original surgical removal would have been.

It is timely that the profession should inform the public as to the dangers and limitations of this method. General practitioners should not be misled by the statements of high pressure salesmen of the manufacturers that they can purchase one of these machines and remove tonsils without trouble or danger. At most it is indicated in but very few cases and the usual surgical procedure is quicker, safer, more efficient, and productive of better results.

GAYLORD C. HALL.

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## OFFICIAL ANNOUNCEMENTS

### PRELIMINARY PROGRAM KENTUCKY STATE MEDICAL ASSOCIATION, MURRAY STATE TEACHERS COLLEGE, MURRAY SEPTEMBER 11-14, 1933

### GENERAL MEETINGS

TUESDAY, SEPTEMBER 12
7:00 A. M.-8:30 A. M.
Dry Clinic

TUESDAY, 9:00 A. M.

Call to Order by the President, Philip F. Barbour, M. D., Louisville.
Invocation, Rev. E. B. Motley, Pastor First Christian Church, Murray.
Address of Welcome, Dr. Rainey T. Wells, Omaha, Nebraska.
Response to Address of Welcome, George A. Hendon, M. D., Louisville.
Installation of President.
Report of Committee on Arrangements, Ben B. Keys, M. D., Murray.

TUESDAY, 10:00 A. M.

1. Contagious Diseases:
    a. Scarlet Fever, J. Wilbur Armstrong, M. D., Berea.
    b. Diphtheria, R. K. Galloway, M. D., Henderson.
    c. Anterior Poliomyelitis, Frank Campbell, M. D., Somerset.
2. Anemias in Children, T. Cook Smith, M. D., Louisville.
3. Early Diagnosis of Tuberculosis, Paul A. Turner, M. D., Louisville.

SPECIAL ORDER AT 12 M.
Oration in Surgery

The Treatment of Perforative Appendicitis with Pathology and Pathological Physiology the Foundation, E. W. Jackson, M. D., Paducah.

TUESDAY, 2:00 P. M.

1. The Acute Abdomen:
    a. Visceral Perforation, C. A. Vance, M. D., Lexington.
    b. Intestinal Obstruction, G. Y. Graves, M. D., Bowling Green.
    c. Acute Appendicitis, Guy Aud, M. D., Louisville.
2. Traumatic Injuries to the Spine, Frank P. Strickler, M. D., Louisville.
3. Dislocation and Fractures of the Elbow, E. C. Walter, M. D., Mayfield.
4. Cancer of the Breast, Waller O. Bullock, M. D., Lexington.

PUBLIC MEETING AT 8:00 P. M.
TUESDAY, SEPTEMBER 12

President's Address, W. M. Martin, M. D., Harlan.
Annual Oration, A Movie Film Illustrating Trachoma and Trachoma Work Among the White People of the United States, Robert Sory, M. D., Richmond.

WEDNESDAY, SEPTEMBER 13
7:00 A. M.-8:30 A. M.

Dry Clinic.

WEDNESDAY, 9:00 A. M.

1. Obstetrical Symposium:
    a. The Tuberculous Pregnant Woman, J. T. Reddick, M. D., Paducah.
    b. Immediate Repair of Cervix and Perineum, Garfield Slater, M. D., Covington.
    c. Management of Postpartum Infection, H. A. Davidson, M. D., Louisville.
2. Management of Incomplete Abortion, Thomas K. VanZandt, M. D., Louisville.
3. Hyperemesis Gravidarum, S. P. Oldham, M. D., Owensboro.
4. Indications for Cesarean Section, John D. Jackson, M. D., Danville.

SPECIAL ORDER AT 12:00 M.
Oration in Medicine

The Hospital as a Community Problem, C. C. Turner, M. D., Glasgow.

WEDNESDAY, 2:00 P. M.

1. Carbon Dioxide Therapy, John W. Scott, M. D., Lexington.
2. The Cause and Cure of Jaundice, Charles F. Long, M. D., Elizabethtown.
3. The Significance of Cardiac Pain, E. B. Houston, M. D., Murray.
4. The Modern Treatment of Pneumonia, O. L. Barnes, M. D., Hopkinsville.
5. Certain Botanical Remedies Upon Whose Effect Our Fathers Depended and Were Rarely Disappointed, Leon L. Solomon, M. D., Louisville.

SUBSCRIPTION DINNER AT 6:30 P. M.
WEDNESDAY, SEPTEMBER 13

For Members of the Association, Wives, Friends and Guests.
Address, A Consideration of Four Eras in Medicine as the Basis for a Prophecy, Willard Bartlett, M. D., St. Louis, Missouri.
Address, Clinical Hypothyroidism, Oliver P. Kimball, M. D., Cleveland, Ohio.

THURSDAY, SEPTEMBER 14, 9:00 A. M.

1. Cancer of the Colon, Fred W. Rankin, M. D., Lexington.
2. Colitis, Granville S. Hanes, M. D., Louisville.
3. The Use of the Rodger Anderson Well-leg Counter-traction Splint in Fractures of the Neck of the Femur, Orville R. Miller, M. D., Louisville.
4. Primary Carcinoma of the Lung, D. B. Harding, M. D., Lexington.
5. Otitis Media and Its Complications, G. W. White, M. D., Henderson.

THURSDAY, 2:00 P. M.

1. Pyloric Stenosis—Plea for Early Diagnosis, Gant Gaither, M. D., Hopkinsville.
2. The Modern Treatment of Typhoid Fever, J. F. Dunn, M. D., Arlington.
3. Gonorrhea and Its Complications in Women, E. Dargan Smith, M. D., Owensboro.

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## PROCEEDINGS OF THE EYE, EAR, NOSE AND THROAT SECTION

The 13th Annual Meeting of the Eye, Ear, Nose and Throat Section of the Kentucky State Medical Association, was held at the Irvin Cobb Hotel, Paducah, Ky., on Monday, May 15th, 1933.

The Section was called to order by the President, Dr. R. H. Cowley, Berea, Ky., at 9:00 a. m.

### BUSINESS SESSION

The secretary read the minutes of the 12th Annual Meeting, held in Louisville, Ky., May 14-15, 1932, and, without objection or correction, same were approved as read.

The President then called for reports of officers, which were made as follows:

### REPORT OF TREASURER

Dr. Walter Dean, Treasurer, reported that in 1932 the retiring Treasurer, Dr. S. B. Marks, had turned over to him balance in the treasury amounting to $126.26, together with a list of members; that he had checked this list back as far as five years and had sent out bills for all unpaid dues during that period, and had received several checks covering these back dues. Dr. Dean recommended that all dues thus collected, except dues for the current year, be refunded, and a new start made with the current year, and that an effort be made to weed out the names of members who had shown no interest in the Society for several years.

After considerable discussion, during which attention was called to a rule adopted by the Society several years ago, to the effect that a member becoming more than two years in arrears for dues be automatically dropped from the membership roll, it was moved by Dr. A. L. Bass, Louisville—

That the Treasurer be instructed to refund all dues collected during the past year, except those for the current year, and that the matter of purging the membership list in accordance with the rule of the Section referred to above, be left to the discretion of the Councilors. Motion seconded and carried.

### REPORT OF SECRETARY

Dr. F. C. Thomas, Lexington, Secretary, submitted the following report:

"The membership roster of the Section stands today exactly the same as last year. However, there are four applications for membership to be acted upon at this meeting.

"I would again urge upon the Section the necessity of submitting new names for membership. It needs to get rid of some of the dead-wood and acquire new timber. A considerable number of those who have defaulted in the payment of their dues have done so, not because of necessity, but because they are no longer interested in the work of the Section, and the sooner we clear out the dead-wood and acquire new members who are interested, the better our Section is going to be."

Election of New Members: The Secretary submitted the following applications for membership in the Section, bearing the approval of the Council.

A. E. Liggett, M. D., Louisville.
Sam Baumgarten, M. D., Louisville.
W. S. Snyder, M. D., Frankfort.
Kenneth Hutcherson, M. D., Louisville.

Upon motion, duly seconded and carried, the men named above were declared elected to membership in the Section.

### ELECTION OF OFFICERS

The following officers were unanimously elected, to serve for the ensuing year:

President, S. B. Marks, M. D., Lexington.
Vice-President, D. M. Griffith, M. D., Owensboro.
Secretary, F. C. Thomas, M. D., Lexington.
Treasurer, Walter Dean, M. D., Louisville.

There was considerable discussion as to whether meetings of the Section should continue to be held separately from those of the Kentucky State Medical Association, or whether it would be better to return to the old plan of holding meetings in conjunction with the State Association.

During this discussion, attention was called to the fact that at the 1926 meeting an amendment to the By-Laws was adopted, providing that meetings of the Section should be held separately from those of the State Association, at a time and place to be selected by the Councilors.

It was moved by Dr. H. G. Reynolds, Paducah, that action of the Section at the 1926 meeting, as above outlined, be reconsidered. Motion seconded. (No vote was taken on this motion).

It was moved by Dr. F. C. Thomas, Lexington, that the Section continue to meet separately from the State Association, and that the 1934 meeting be held at a time and place to be selected by the Councilors. Motion seconded.

Moved by Dr. J. D. Williams, Ashland, as an amendment to above motion, that the place of meeting be within a radius of 100 miles of Lexington. Amendment seconded, and upon being put to vote was declared lost.

Dr. Thomas' original motion was then voted upon and declared carried.

There being no further business before the Section, the scientific program was proceeded with as follows:

### Scientific Session

I. The Relation of the Nasal Sinuses to Asthma, Dr. W. A. Weldon, Glasgow.

Discussion opened by Dr. A. L. Bass, Louisville.

II. My Observations of the Lynch Ethmo-Frontal Operation, Dr. A. L. Bass, Louisville.

Discussion opened by Dr. J. D. Williams, Ashland, and Gaylord C. Hall, Louisville; continued by Dr. Walter Dean, Louisville and closed by Dr. Bass.

III. Fracture Into the Frontal Sinus, With Reports of Cases, Dr. E. C. Yates, Lexington.

Discussion opened by Dr. S. B. Marks, Lexington; continued by Dr. A. L. Bass, Louisville and closed by Dr. Yates.

IV. Two Unusual Cases, Dr. D. M. Griffith, Owensboro.

Discussion opened by Dr. H. C. Reynolds, Paducah, continued by Dr. Lee Wallace Dean, St. Louis and closed by Dr. Griffith.

V. Motion Picture Demonstration of Treatment of Trachoma, Dr. Robert Sory, Richmond.

Discussion by Dr. S. B. Marks, Lexington, Dr. Adolph O. Pfingst, Louisville, Dr. D. M. Griffith, Owensboro, Dr. J. D. Williams, Ashland, and in closing, by Dr. Sory.

The Section adjourned to luncheon given for the guest of honor, Dr. Lee Wallace Dean, of St. Louis, Mo., after which Dr. Dean addressed the Section on the subject:

"The Diet in Otolaryngology."

Upon motion by Dr. Adolph O. Pfingst, a rising vote of thanks was tendered Dr. Dean.

The section reconvened, and the scientific program was resumed as follows:

VI. The Surgical Treatment of Concomitant Squint, Dr. Adolph O. Pfingst, Louisville.

Discussion opened by Dr. Walter Dean, Louisville; continued by Dr. F. C. Thomas, Lexington, Dr. D. M. Griffith, Owensboro, and closed by Dr. Pfingst.

VII. Acute Laryngo-Tracheo-Bronchitis in Children, With Case Reports, by Dr. S. B. Marks, Lexington.

Discussion opened by Dr. Gaylord C. Hall, Louisville and closed by Dr. Marks.

VIII. The Three Types of Deafness, Dr. Walter Dean, Louisville.

Discussion opened by Dr. H. G. Reynolds, Paducah; continued by Dr. R. H. Cowley, Berea; Dr. E. C. Yates, Lexington; S. B. Marks, Lexington, and closed by Dr. Dean.

### Voluntary Case Reports

I. An Unusual Tumor in an Unusual Location, Report of Case by Dr. E. C. Yates, Lexington.

II. Otosclerotic Mastoid, Report of Case, Dr. S. B. Marks, Lexington.

The scientific program having been completed, the Section recessed at 5:00 p. m.

### Evening Session—7.00 P. M.

The Section reassembled at 7:00 p. m. at the Annual Banquet in the Irvin Cobb Hotel, after which the retiring President, Dr. R. H. Cowley, Berea, addressed the Section on the subject:

"The Conquest of Mastoiditis."

The Section adjourned, sine die, at 9:00 P. M.

F. C. Thomas, M. D., Secretary.

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**The Cylce of Change.**—At the same time, standards of education and of living have been elevated so that the individual is caught between his desire for better things and his inabilty by his individual efforts to obtain them. In this dilemma he turns to the state or to organized industry for relief, thus further sacrificing his independence of action and thought. To this, the man who values the preservation of his own individuality objects, and seeks to bring about a compromise between the interests of society and his own. As Mr. Coyle has written, "If a new culture is to come, the economic adjustment needs to be on the democratic rather than on the technocratic side. The latter calls for government of all organized society by the economic system that produces and distributes material goods. The former assumes the right of society, acting as a whole, to apply certain regulatory measures to the economic system and then to devote its main interest to other things. Technocracy would abolish freedom in the interest of efficiency. Individualism in its new form would enlarge freedom of initiative at the expense of efficiency, since the efficiency of these new machines is so great that there is plenty to spare."

## ORIGINAL ARTICLES

# PRESIDENT'S ADDRESS*

R. H. Cowley, A. B., M. D., F. A. S. S.
Berea.

Since I have been practicing medicine I have seen the menace of mastoiditis practically disappear except in the rural districts where the care of a specialist is not available from the beginning of the middle ear trouble or among the poor who cannot afford competent medical service. As I talk with the men from the various parts of the country I find that this is a common experience. Our mastoid cases at the present time are mostly neglected middle ear cases that have been allowed to drift along month after month with no adequate care. Rarely do we see a case develop from the beginning of the earache and continue on to a mastoiditis in spite of our efforts to stop the trouble.

This is due to the fact that we have at our disposal several very definite procedures which build up the defensive mechanism of the patient, overcome the toxins of the invading organism and so cut short the middle ear suppuration which is the usual cause of the trouble. I want tonight to review briefly these helpful procedures because they have meant so much to me for my own peace of mind and also because I feel sure from conversations with my colleagues that at least one of them is not in general use.

First, paracentesis. When I started practice over thirty years ago paracentesis of the drum was done only by the more aggressive doctors As years went by and it became apparent that this procedure if properly done could do no harm and that it often changed the course of the disease for the better it has come into such general use that even a general practitioner is considered derelict in his duty if mastoiditis develops in a case where he has not done this simple operation.

Second in order comes our improved knowledge of the value of proper food selection in acute infections. I remember very well when I was a medical student hearing one of our professors, one of the most scientific of the lot, make the statement that cod liver oil was as good as cream or any other easily digested fat and no better. Vitamines had not been discovered at that time. We all know that our worst cases come from the poorer families where the food is not selected for its vitamin content but for its cheapness or from the wealthier families because the children are allowed to eat what they like best. The biochemistry of the body depends directly on the chemistry of the food. The ability of the body to resist infection depends directly on the biochemistry. Given a severe infection of any kind and we can say with almost absolute certainty that the patient's food selection has been faulty. Our guest of honor has done as much as any man in America to furnish us clinical proof of this fact. What man of us at the present time would attempt to bring a patient through a severe infection of mastoid, sinus or what not without giving careful attention to a proper food selection for that particular case. Cod liver oil and spintrate added to the diet have saved many an operation and many a life.

Third I will mention foreign protein therapy. This has been a tremendous step in advance, giving us something to do besides sitting idly by watching the infection progress in spite of our best efforts to stop it. Milk injections did valiant service when we knew no better form of foreign protein therapy and even now I resort to them when I have a had a case of gonorrheal ophthalmia and want to play safe.

There are many preparations on the market at the present time and I presume that each one of this group has his favorite. At least I think that I would be safe in saying that every man here uses some form of foreign proteid injections in his every day treatments. My favorite at the present time is Omnadin in spite of the adverse decision of the Council of Pharmacy and Chemistry. Every acute head infection at our hospital gets Omnadin. We are looking for a cheaper and better preparation but we simply must have some form of foreign proteid in my acute infections.

Next I will mention the dry cotton wick as recommended by Dr. Pratt of Minneapolis. From what I can learn I do not believe that this simple and valuable procedure is in very general use. At first thought it did not appeal to me at all and there are some difficulties in its use, especially in hospital practice, where the nurse in charge of the case is changed several times a day. No one should be allowed to use this procedure who has not been personally instructed by the doctor himself. However, with this personal instruction it can be done by a mother or any other family attendant quite as well as by a nurse. The theoretical objection to its use is that the cotton wicks will carry into the ear infection from without. This was the objection which kept me from using the method when I first heard of it. However this objection disappears if the hands are washed carefully before each wick is inserted and if the ear is filled with 1/500 metaphen solution three or four times a day. Another objection was that the wicks would have to be renewed so often that it would keep one person busy, in some acute cases, as the wick becomes a plug if it is allowed to to get wet through. This meant changing it every 10 or 15 minutes in some cases for the first day or two. This objection too disappears if one really finds that the cotton wick actually changes the positive pressure in the middle ear into an ever so slight negative pressure and thus prevents the backing up of the pus into the mastoid. Nothing is too much trouble if it actually accomplishes this. And this it really does much more surely than any procedure I have ever tried.

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*Read before Eye, Ear, Nose and Throat Section, Kentucky State Medical Association, Paducah, May 5, 1933.

The cotton is rolled on to a perfectly smooth applicator making a cylinder long enough to reach from the ear drum out far enough so that it can be removed by the fingers. It must be small enough to enter the ear and pass down to the drum easily. The end of the applicator must be placed at least a half inch from the end of the cotton wick so that there will be no possibility of injuring the drum as it is inserted. The applicator is loosened before it is inserted so that it can be withdrawn leaving the cotton in place. The patient is placed with the ear toward a good light and if he is old enough to co-operate, he draws the tragus gently forward and upward while the nurse or attendent draws the ear back thus straightening the canal and making it easy in most cases to place the cotton directly in contact with the drum. This placing the cotton directly in contact with the drum is very important for if this is not done we do not apply the capillary attraction which is the secret of success directly to the opening of the drum but there will be a small lake of pus between the drum and the cotton and we gain nothing for all our pains. We have used this method in our hospital in a great many cases and we are very well pleased with the results. We think that the gentle suction of the capillary attraction will bring about resolution in an acute case quicker and surer than any procedure with which we are acquainted.

Add to the procedures mentioned, light heat, leaches when they are obtainable and the proper care of the nasopharyngeal infection which is usually present and we have all the help we need for handling the ordinary case of threatened mastoiditis. However the middle ear suppuration complicating measles and scarlet fever can in no way be called ordinary. Here we get the violent type where often the mastoid is invaded and destroyed in spite of every effort on our part. It is here that convalescent serum comes to our aid. For by the use of convalescent serum we are able to so reduce the severity of the infection that complications such as pneumonia and middle ear suppuration are definitely controlled. In a way it is unfortunate that most of the work that has been done on convalescent serum has been done by men in charge of large children's hospitals in our great cities. Their problem has almost necessarily been one of prophylaxis. What they wanted was to prevent the spread of the contagion in the hospital. And they have done splendid work along this line. They have proven beyond doubt that measles, scarlet fever, chicken pox, mumps, whooping cough and anterior poliomyelitis can be largely prevented if the convalescent serum of these diseases is given very soon after exposure has taken place. They have also proven that all of these diseases can be so modified in their severity that dangerous complications will not develop if the appropriate serum is given in adequate amount after exposure but before any symptom of the disease has appeared. They have proven too that whole blood is as effective as serum if it is given in twice the dosage of the latter. And last and most important because of its practical application they have proven that the blood of adults who have had the particular disease in early life is about as effective as recent convalescent serum, if it is given in four times the dosage. These facts are wonderfully important and offer hope to many a child who might otherwise become deaf or crippled.

In looking up this subject I went over a large number of articles received from the Library of the A. M. A. from Tices and Nelsons research service and I was surprised to find almost no mention of the use of convalescent serum as a treatment for these contagious diseases. A few days ago I found out about the work being done in Detroit by the Rockefeller Foundation under the direction of Dr. Gordon and wrote him asking for reports on his work. They sent me a mimeographed copy of their January 1932 report containing their latest conclusions. The report was published by the Illinois State Health Society in a bulletin dated January-March 1932.

Dr. Gordon says in regard to prophylaxis that so far as he knows Detroit is the only city that has attempted the development of facilities whereby serums for all diseases of unknown cause could be prepared in amounts sufficient to supply the whole community. He says that they have no difficulty in obtaining sufficient donors. They pay the donor a fee of ten dollars. They keep serum on hand for scarlet fever, measles, mumps, chicken pox, whooping cough and anterior poliomyelitis.

He says that the serum is most effective in preventing mumps and least effective in preventing whooping cough. He also says that serum taken from a convalescent human patient is about four times as effective for prophylaxis as an immune serum taken from a susceptible animal. He says in regard to treatment with convalescent serum that it has been used so long in scarlet fever that there is little difference of opinion as to its value. He considers it of equal potency as horse serum and uses it whenever the patient is sensitive to the horse serum. In regard to its use in measles he says that it has not been used with sufficient frequency to evaluate its effect in modifying a well developed case of measles. However he recommends a regular transfusion of convalescent blood in cases of unusual severity. I think this is a most unfortunate attitude to take in regard to measles serum for we in Berea have proved at least to our own satisfaction that convalescent serum in measles as well as in scarlet fever and mumps, the three diseases in which we have used, is capable of so reducing the severity of the disease that complications are extremely rare. In fact it has changed our whole attitude toward these diseases especially measles, for measles was a perfect nightmare for us up to 1925 when we first used the serum. Our students came from the recesses of the mountains, where they escaped contact with the ordinary children's diseases sometimes for life. In our student body, there are usually several hundred who have not had measles. This used to mean that when measles broke out among them it was a veritable pest, spreading as rapidly as it did in the cantonments during the World War. Contagious diseases when they spread so rapidly have a tendency to increase in severity as they spread and by the time we reached the end of one of our old epidemics we had on hand a large number of serious complications, mastoids, pneumonia, empyemas and sinus diseases. It was no rare thing to have an appendix perforate before we were conscious that it was giving trouble. In the winter of 1925-26 we first tried out the use of convalescent serum following the method worked out by Dr. Park of New York City. I well remember the morning after the first serum was given. We had two wards each with about 20 boys. In the evening when the serum was given there was incessant coughing, a most distressing condition as anyone who is familiar with measles can testify. They were all given the serum at one time. The next morning I asked the nurse "Well can you tell any difference in our patients?" She answered "Just step into the ward and listen." The coughing had practically stopped. That was the beginning. Our woman physician was skeptical. She came to me one morning and announced "Well we have two pneumonias in spite of your serum." I had her go over the cases carefully and confirm her findings and then gave each of them an additional 10 c c of the serum. The next morning the temperatures went down and did not come up again. Since that time we have kept a supply of the serum on hand and use it freely whenever an epidemic breaks out. We have had eight years of experience in hundreds of cases and it would be hard to convince anyone connected with our hospital, that it is useless to give the serum after the symptoms have started.

In 1930 we had a very severe epidemic of mumps. Now mumps with us had always been looked upon more as a nuisance than as a disease. But this epidemic was different. Temperatures began to hover around 106, orchitis of a severe type became common and there were many who were delirious. Having had such favorable results with the use of convalescent serum in measles, we decided to try it and see what it would do for these severe case of mumps. By this time we had plenty of convalescents and so we drew off the blood, separated the serum and injected every case with 10 c c. The result was immediate and quite remarkable. After starting the use of the serum no temperature went above 102, there were practically no cases of orchitis and what there were, were very mild, and there was no delirium.

In our epidemic of scarlet fever three years ago we used convalescent serum on some of our most severe cases and we found that it was quite as satisfactory as it had been with measles and mumps. Our method of handling an epidemic of measles at the present time is as follows: We do a Wasserman test on all the boys as they come in if they are healthy and look as if they could stand the loss of a pint of blood. They have all been checked for tuberculosis before this time. When they are ten days convalescent we draw the pint of blood. We use the serum for treatment on all the cases which are very sick especially if earache or symptoms of pneumonia are present. In severe cases we give 10 c c and we repeat the dose as often as necessary but usually not oftener than once a day, until we are satisfied that the danger is past. We would not hesitate to give 50 c c at one dose at any time if the case seemed to require it for we have never seen any sign of trouble follow its use. However, I think that 40 c c is as much as we have ever given in any one case.

One reason why so many men do not believe in the use of convalescent serum in treatment is that it does not act as quickly nor as effectively as diphtheria antitoxin. We should not expect too much of convalescent serum. All we should expect of it and what we in Berea have come to expect with confidence is that it will reduce the severity of the symptoms and so prevent complications and that is quite enough to justify its use.

Dr. Gordon stresses the fact that the serum from different donors varies in potency and this may be another reason why it has disappointed some who have used it. To overcome this difficulty he advises pooling the blood of 8 or 10 donors so that the resulting product will be more uniform in potency. This seems like a rational procedure but we have never done it in Berea as we felt that in doing it we were increasing the chances of contamination. Besides we have never observed enough difference in the effects of the different serum to make the pooling seem necessary.

Another reason why convalescent serum has disappointed some of those who have used it on only a few cases is that it has been used only after the case was in a serious condition. Now diphtheria antitoxin is effective just in proportion as it is used early in the case. The difference in its effect when used on the first, second, third and fourth days being very marked. So, a priori, we would expect the same thing from convalescent serum. The only way to use convalescent serum satisfactorily is to have a supply available and use it at the beginning of the illness or certainly the minute there is a threat of a complication. Used in this way serious ear complications can positively be controlled and when we think of the percentage of deaf people who date the beginning of their ear trouble back to an attack of scarlet fever or measles, we should take whatever steps are necessary to have an adequate supply of the serum available.

After the epidemic of 1916 when we first used the serum for treatment I took the first opportunity I could get to go over the charts and compare them with the charts of the 1924 epidemic when we did not use the serum. For lack of time I compared the charts of only 75 cases for each year. I have made three slides which I will show so that you can see the contrast. In studying these figures it will be seen that both epidemics started out with about equal severity, but that the use of the serum reduced the severity on successive days by about one-half.

The conquest of mastoiditis is not complete. We will have occasional cases and occasional operations but the dread of the condition as one before which we must stand helpless as we did only a few years ago has passed.

In the future we will fail only in the comparatively rare cases where the defensive mechanism of our patient is reduced so much below the safety line that the infection conquers before we have time to bring our forces into action.

# THE RELATION OF NASAL SINUSES TO ASTHMA*

W. A. Weldon, M. D.

Glasgow.

Dr. Richard Kern of Philadelphia aptly said, "The relation of sinus disease to asthma is a subject on which there has been a great deal of loose thinking, and what is worse, a great deal of loose writing."

All who have devoted time to the practice of Rhinology believe that there is some relation. Just what and how much no one is prepared to say.

Since Voltolini first reported relief from asthma by the removal of polypi, every region of the nasal cavity has been regarded by one or another Rhinologist as specifically concerned with the causation. The upper and back part of the septum, the ethmoid region, hyperplastic areas on anterior tip of middle and inferior turbinates, all of the sinuses, and the spleno-palatine ganglia, each has been referred to as the important point. The therapeutic methods have varied from local applications and cauterization of hypersensitive areas to submucous resection, turbinectomy, and radical exenteration of any or all of the sinuses. The results of treatment have varied from complete relief, rarely; partial cures, infrequently; no relief, frequently. There is no evidence that radical nasal surgery offered any better hope of cure than the more conservative local treatments and cauterization. A recent series of cases of Dr. Harry L. Baum of Denver shows that any nasal treatment or manipulation had very little permanent beneficial effect on the chest condition in any case.

Many theories have been advanced as to the cause of asthma. One, a disturbance of metabolism in which there is an excess carbohydrate diet, altering the asthmatic so that his condition becomes like a powder magazine. Nasal disease is apt to supply the spark that causes explosion of asthma. Another, that asthma is dependent upon two factors: toxemia and ethmoid irritation; the two must be present at the same time. Another assumes a lack of balance between the parasympathetic and sympathetic systems. There is evidence that hyperexcitability of the former plays a dominant part in the production of the attack.

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*Read before Eye, Ear, Nose and Throat Section, Kentucky State Medical Association, Paducah, May 15, 1933.

Recent trend of opinion is that asthma, in many cases, is an allergic manifestation, not unlike seasonal hay fever, perennial hay fever, angio-neurotic edema, urticaria and eczema.

Dr. Chandler Walker speaks of asthma as of two types: bronchial asthma and asthmatic bronchitis. While all cases do not fit into this classification, therefore, is not universally accepted, it is a simple and practical working guide.

According to Dr. Walker true bronchial asthma consists of the following cycle of events. A spasm of the smooth muscular tissue of the bronchi, with an edematous infiltration of the mucous lining. The muscles of inspiration are able to draw the air into the cells through the constricted bronchi, but the muscles of expiration, with the elasticity of the lungs, are not able to expel the air in normal time; so expiration becomes prolonged and finally interrupted by inspiration. Ultimately the lungs are distended with residual air, which caused labored inspiration, but never to the same extent as expiration. The attack comes suddently, lasts a few minutes or few hours, and begins to subside when sputum is raised. During the interval the patient is entirely relieved. It occurs most frequently in individuals under fifty years of age.

In this type of asthma frequently there is an involvement of the sinuses, an edematous infiltration of the mucosa, similar to that which occurs in the bronchi. The turbinates are congested and swollen, hence a blocking of the nose. Frequent sneezing and a watery discharge are common. The nasal symptoms are similar to an attack of hay fever or perennial hay fever. A radiograph of the accessory sinuses taken at this time may lead the unsuspecting to believe the condition was pansinusitis, owing to the thickened mucosa. Another taken during the interval would be perfectly clear.

The etiology of this type seems to be some foreign protein to which the individual is sensitive; such as animal emanations, certain foods, pollens and bacterial proteins.

The personal history of such a case more often than not, commences at weaning; such as food idiosyncrasies, followed during school life by eczema or cyclic vomiting. During early adult life, hay fever or urticaria. Later on, bronchial asthma.

Usually the family history is interesting and shows in one or more near relatives the prevalence of asthma, skin rashes, etc.

The other type of asthma, asthmatic bronchitis according to Dr. Walker, presents to the close observer a different picture. This type developes more often in one who has chronic bronchitis; often mistaken to be tubercular. There is not so much a spasm of the musculature of the bronchi as an accumulation of thick, jelly-like mucus in the bronchioles, that is raised with difficulty. Usually the attack comes in the night and lasts from a few minutes to a few hours. The dyspnea is chiefly inspiratory and is relieved, as in the former type, when sputum is raised. During the interval there are definite physical signs of bronchitis.

Most commonly this type of asthma developes in individuals over fifty years of age.

The etiology of asthmatic bronchitis is thought to be some bacterial infection, commonly found in the sinuses, tonsils, teeth, colon, and so on.

The personal history is negative. Family history indicates no hereditary tendency.

Using the above classification as a working guide, it is a good plan to divide our asthmatics into these groups: That of bronchial asthma and asthmatic bronchitis. Or according to the etiology; Whether caused by some foreign protein or bacterial infection.

Upon every case of asthma a careful history and complete rhinological examination, including radiographs of the sinuses, are necessary. A thorough physical examination, including blood and urine, by the internist. And if at all indicated, systematic skin tests with the suspected protein, by the allergist, or at least one who is familiar with this procedure. Allergy is a special field and requires special training if satisfactory results are to be obtained.

If the case proves to be one of bronchial asthma, or allergic asthma, nasal symptoms are frequently present. It is quite possible for the Rhinologist to assume that the nasal pathology is an etiologic factor in the production of the paroxysm, rather than a concomitant involvement of the upper respiratory tract, caused by one and the same thing. The term "nasal asthma" has been appropriately used.

Conversely, if the allergic asthma is due to a bacterial protein, the bacteria may be found in one or more of the sinuses in which case the infected sinus becomes the etiologic factor and should be dealt with accordingly Otherwise nasal procedures in allergic asthma are disappointing, comparable to removing a wheal to cure urticaria or a Peyer's patch to cure Typhoid.

If the case proves to be one of asthmatic bronchitis, or asthma due to a bacterial infection, the foci of infection frequently is found in one or more of the sinuses and should be treated with this in mind.

All cases of asthma are not so easy to classify as this paper might lead one to believe. The bronchial or allergic type, if allowed to pursue a lengthy course, will develop emphysema and bronchiectasis, with symptoms similar to that of asthmatic bronchitis. This is referred to as "the asthmatic state." The "nasal asthma" or the involvement of the upper respiratory tract in bronchial asthma will likely produce sinus disease after a period of time.

The patient with asthmatic bronchitis or asthma due to a bacterial infection may ultimately become sensitive to a foreign protein, due to lowered resistance.

### Conclusion

1. That sinus disease is not an etiologic factor in allergic asthma, except in rare cases, where the individual is sensitive to bacterial protein.
2. That allergic asthma and sinus disease often are concomitant, each dependant upon the same etiologic factors.
3. That sinus disease is an etiologic factor in asthmatic bronchitis, or asthma due to an infection.
4. That allergic asthma ultimately developes into the "asthmatic state", resembling asthmatic bronchitis.
5. That sinus disease, whenever found in the asthmatic, should be treated as in the non-asthmatic.

### DISCUSSION

**A. L. Bass**, Louisvile: I am sure that all of us have enjoyed Dr. Weldon's excellent and unbiased paper. Every case of asthma is an individual one. The internist should be the first consultant; then, after a careful history and thorough examination and all laboratory tests made that are indicated, the examination is not complete without a thorough search for abnormalities in the upper respiratory tract. Lesions in our special field are but one of the many etiological factors; therefore their correction may be of but little or decided benefit, but should not be expected to cure.

The asthmatic conditions may be due to allergic influences aggravated by a secondary infectious process; or the tissue changes may be due to an infectious process primarily. The latter may be much benefitted by operation as referred to by Dr. Weldon as the asthmatic bronchitis type. All of us have had the experience and satisfaction of relieving the asthmatic by clearing up some focus, be it sinus or what not. Then, in a few months when we thought the asthma was gone forever, the patient would have return of symptoms. Recurrences are the rule and not the exception.

The relief from operation which lasts for a while, only to have return of symptoms where tissue returns, gives clinical evidence that there is a return of like tissue that first lined the sinus and is subject to the same influences as before.

Even though the radical group do not show much better statistical results than the conservative, I am of the opinion that if there is much disease in the sinuses it should be dealt with as though he was or was not an asthmatic, but it is more important since he is an astimatic. Since the regenerated mucosa is subject to the same influences, it behooves us, or more so the internist, to ferret out these outside influences, be it a metabolic factor, toxemia, sensitization, allergy or what is it, and use such measures as necessary to prevent tissue changes. According to evidence, disease of the nasal or sinus mucosa is a result rather than the cause of the allergic syndrome. It is a field where a lot of work has been done and some fertile soil established, but there is quite an area left in the field for future development.

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## MANAGEMENT OF SKULL FRACTURES INVOLVING FRONTAL SINUS*

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Injuries of the head should be of popular interest to the otolaryngologists because in so many one of the divisions of the ear apparatus or the sinuses are affected. Much has been written concerning the immediate management of fractures. In this paper I wish to limit the discussion to the frontal sinuses only. Wide variation of opinion is manifest in the literature. Teachenor, in particular, is very radical in his treatment. He believes all cases should be operated upon. Robb, of Detroit, and Gourdjian believe that conservative treatment should be practiced. These opinions are based on personal experiences as only three to five per cent of skull fractures involve the frontal sinus. Not many otolaryngologists give their opinion as most of these cases fall into the hands of the neurological surgeon or general surgeon. It is primarily a problem for the otolaryngologist. Surgery in any injury to the brain or its coverings can accomplish but two things: first, it may relieve compression, second, it may cure sepsis, or better still, it may prevent meningitis. Therefore, the problem at issue is "Should case be operated upon? Or should conservatism be practiced?" It seems to me that to understand traumatic lesions we must appreciate the physiological and anatomical differences in different regions of the skull.

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*Read before Eye, Ear, Nose and Throat Section, Kentucky State Medical Association, Paducah, May 15, 1933.

The frontal bony region contains a mechanism, the nose with it accessory sinuses, the mucous membrane of the nose was evolved in life to prevent infection of the brain. There is another factor which enters into the intracranial complication in fractures involving the frontal sinus. The nervous system is covered by bone, the skull and the dura—one to protect against gross injury, the other microscopical disturbances. Nature has gone still further in its development by placing a framework inside the dura—piarachnoid, which permeates and envelopes all the cerebral tissue. This framework is not only a barrier but has the power of digesting organisms due to presence of arachnoid cells with phagocytic tendency. The bone, dura, and arachnoid cells all have common source of develpment; they are all specializations of connective tissue. Wherever we find a center of ossification in skull we find adherent dura; wherever we find an opening in dura for the exit of nerves or veins, or entrance of arteries, we find an arachnoid prolongation. The prolongations go inward to the brain itself following the veins and arteries in all their ramifications. In meningitis it is these piarachnoid prolongations externally that interest us as these are the avenues of invasion of micro-organism in skull fractures. These prolongations become the points of especial vulnerability to infection, depending upon the liability of the overlying structures to infection. The piarachnoid presents therefore three main points of vulnerability—the nose, ear and blood stream. Of course, any accidents which open the subarachnoid space make meningitis possible.

The mucous membrane of the nose is a highly protective membrane which protects the cerebrum from invasion of infection even though the piarachnoid prolongations extend considerable distance in the nose. In contradistinction the ear has no such protective mechanism. If accident occurs to the nose, meningitis occurs as the prolongations are opened. Twenty-five per cent of untreated cases of fracture through accessory sinus in which dura is performed die, while only eight per cent die in untreated fractures of temporal bone through the dura. We have seen or experienced injurying the dura during a frontal sinus operation and have seen cerebrospinal fluid leak but rarely does meningitis develop due to protective mechanism of nose, but in fracture of frontal sinus a spicule of bone is driven into subdural space. The patient may have no symptoms for some time, but the first cold in his head the patient contracts meningitis.

The frontal bone possesses peculiar anatomical and physiological properties which permit certain types of injuries which do not make patient seriously ill immediately following trauma but result fatally in a large proportion of cases if improperly treated.

Fractures of frontal bone involving frontal sinus are extensions of fracture of vault, rather than base. The basal fractures have always been considered serious as they are frequently compounded by involving the para-nasal sinuses. Basal fractures following a transverse meridian frequently involve middle ear and mastoid, ethmoid and sphenoid sinuses. Those passing along longitudinal meridian involve the petrous bone and ethmoid and sphenoid but usually pass lateral to the frontals and rarely involve them. In fractures of the vault usually both tables of bone are included. It is particularly the fracture of the inner plate that is of importance as this makes a compound fracture and exposes cranial cavity to infection. There are two factors which render complication almost inevitable.

First. Hemorrhage which fills frontal sinus. Blood passes through duct into nose in middle meatus. This obstructs nose and causes irritation of mucous membrane of nose with sneezing, blowing nose, or other respiratory effort to clear passage. These tend to increase intranasal pressure and force infected material into cranial cavity from frontal sinus.

Second. Clot forms in frontal sinus and becomes infected and the ball valve action of clot or infection or edema of lining mucous membrane blocks duct and intrasinus pressure increase forces infection inward.

Teachnenor reports sixteen cases in two series of eight each. The results are interesting. Of the first eight, none were operated upon; seven died.

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|---|---|
| Brain injury | 2 |
| Intra-dural frontal abscess | 1 |
| Extra-dural abscess and meningitis | 1 |
| Meningitis | 3 |

One case of cerebrospinal rhinorrhea with recovery.

Second series—eight cases—all operated upon early with a mortality of 37.5%; 25% from brain injury accompanying fracture; 12.5% from extracranial complication.

Teachenor insists that all are operative cases. Gourdjian reports 125 cases with 116 leaving hospital recovered; 9 died. In the series meningitis occurred in 8/10 of 1% of cases. He stated, however, that very few of cases dismissed were followed after discharge. This to me is of vital importance as one case in my group was well for six weeks and died of meningitis. His advice is necessarily conservatism.

It might be well to group the cases into types of fractures:

1. Simple.
2. Simple depressed.
3. Compound comminuted.

Most men agree that the third type are all operative. The discussion arises primarily in the simple depressed and simple cases. It has become very evident to me that these cases are serious problems to decide on rational form of treatment. We all have seen cases recover with both types of fracture without treatment. Certainly a fracture involving only outer plate is not an operative one per se always, but one can never be certain. In one case Teachenor reports a case of fracture of inner plate and no involvement of outer plate. In one of my cases the patient had a definite depressed fracture of outer plate with an apparent fracture of inner plate. At operation the "fracture" of inner plate was a rather large groove in bone with a vessel intact. In the event of involvement of the inner plate the fracture is a compound one and I believe should be treated as such. Further when a blow is received that is severe enough to fracture the outer plate to depress same it seems almost impossible for the inner plate to escape regardless of the x-ray findings. I believe the inner plate should be thoroughly examined by operation. In many of these injuries the force of the blow is not on the outer plate but on the root of the nose with a concomitant fracture of septum of frontal sinuses, inner plate and cribiform. In one of these cases the crista was broken off and lying buried one-fourth inch in the anterior lobe of brain with no fracture of outer plate of frontal sinus. I believe that there are some fractures of the skull communicating with frontal sinus which could get well without surgery, but how is one to determine this. Most of these cases are in good condition and often are dismissed as well only to return in three weeks to two months to die of an intracranial complication. During the past five years I have seen ten cases of fracture of skull communicating with frontal sinus. All were males with ages ranging from ten to fifty-nine years. All these cases were operated upon with the exception of two and these two died. One of meningitis six weeks following dismissal from hospital; the other from ruptured brain abscess and meningitis twenty days after admission to hospital. Of the eight operated upon, seven are living and well today. One died of extensive brain injuries three days after admission to hospital. Of the ten cases only one could be classified as simple depressed fracture. This showed a possible fracture of inner plate with nothing found at operation.

Case No. 1. Boy, age 14, admitted April 19, 1928. Was kicked in the forehead by a pony. A diagnosis of compound comminuted depressed fracture of the skull was made Patient was operated upon. Findings at the time of operation was laceration of the scalp with depression of the frontal bone in the middle of the forehead extending over an area of about 1½ inches in the transverse diameter and 1½ inches in the vertical. The inner plate of the frontal sinus was comminuted and a number of small spicules of bone were lying against the dura. The upper plate of the orbit was shattered and the greater portion of this had to be removed. The para-orbital was torn and the contents were protruding into the frontal sinus. The anterior lobe of the brain was lifted and several small spicules of bone removed from its undersurface.

Case No. 2. Male, age 45, admitted October 7, 1930. Was injured in an automobile accident. A diagnosis of comminuted fracture of the frontal bone and compound fracture of the nose was made. Died twenty days following admission to the hospital. Autopsy showed a number of spicules of bone loose in the anterior fossas. Pus in the frontal sinus. Beneath the dura covering the anterior surface of the right lobe was an epidural abscess containing about 20 c. c. of yellow pus. Abscess covered tip of right frontal lobe and extended on to the mesial surface of this lobe.

Case No. 3. White boy, age 16, admitted December 17, 1930. Was injured in an automobile accident. A diagnosis of depressed comminuted fracture of the frontal bone and fracture of the mandible was made. The fracture of the mandible was corrected by interdental wiring. Patient's general condition was good and no operation was done on the head. Patient readmitted to the hospital six weeks following dismissal and died of a meningitis.

Case No. 4. White male, age 58. Struck by an automobile. A diagnosis of compound comminuted fracture of the frontal bone was made. Patient was operated upon. The external plate over the frontal sinuses was fractured and comminuted and depressed into the frontal sinus. The mucous membrane of the frontal sinus was edematous and the sinus filled with blood clot. The inner plate of both sinuses was comminuted and several spicules of bone were lying on the dura. Exploration of the dura revealed no tear in the dura. Patient recovered and is now in good health.

Case No. 5. White male, age 22, admitted June 8, 1931. Was injured in an automobile accident. A diagnosis of depressed comminuted fracture of the frontal bones was made. Patient was operated upon. There was a marked depression of the outer plate of both frontal sinuses. When this plate was removed the sinuses were filled with clotted blood and the inner wall showed a compound comminuted fracture involving the cribiform plate and superior wall of the orbit on the right side. There was a large blood clot lying over the anterior lobe of the brain on the right side. A number of spicules of bone were lying loosely in the frontal fossa. No tear in the dura was found. Patient made a complete recovery.

Case No. 6. White male, age 39, admitted July 21, 1931. Was beaten by three men and shot through the chest. A diagnosis of extensive compound comminuted depressed fracture of the frontal bones, the temporal bones and nose with laceration of the brain was made. Gun shot wound in chest. Patient was operated upon. There was an extensive fracture, comminuted and depressed, involving both frontal bones and temporal bones with multiple lacerations of the brain and dura. many spicules of bone found in the brain tissue. Cerebro-spinal fluid leaking from several wounds in the dura. Patient died ten days following admission to the hospital.

Case No. 7. White male, age 21, admitted to the hospital February 6, 1932. Was injured in an automobile accident. A diagnosis of comminuted fracture of the frontal bones and nose was made. Patient was operated upon. The entire superciliary ridge on the right including the upper plate of the orbit was comminuted and depressed. The cribiform plate was fractured and this fracture extended down into the posterior ethmoids. Several spicules of bone were lying in the frontal fossa on the right side. On the under surface of the frontal lobe on the right side there was a tear in the dura about ¼ inch long. This was closed—two sutures. Patient made an uneventful recovery and still remains in good health.

Case No. 8. White male, age 21, admitted to the hospital April 26, 1932. Was injured in an automobile accident. A diagnosis of compound comminuted fracture of the skull involving frontal bone was made. Patient was operated upon. At the time of the operation the superciliary ridge at the outer third was driven in about one inch. The upper plate of the orbit was shattered. The inner plate was comminuted and several small spicules of bone were driven through the dura. Cribiform plate was likewise fractured. The dura was sutured. Patient made an uneventful recovery.

Case No. 9. White boy, age 10, admitted to the hospital January 24, 1932. Was injured by falling out of a loft striking head on a manger. A diagnosis of depressed fracture of the frontal bone was made. Patient was operated upon and at the time of operation there was a depressed comminuted fracture of the frontal bones. Frontal sinuses were filled with blood clot. The inner plate of both frontal sinuses were fractured. A blood clot was found over the frontal lobe on the right side. No tear in the dura was found. Patient made a complete recovery.

Case No. 10. White boy, age 21 was admitted December 13. 1932. His injury was received while playing basketball, striking head during the game. A diagnosis of depressed fracture of the right frontal bone was made. Patient was in good general condition. At the time of the x-ray a diagnosis of fracture of the inner plate of the right sinus was made and an operation was done. At the time of the operation a depressed fracture on the right side was found involving the outer plate. Frontal sinus was filled with blood clot and the inner plate was not fractured. The groove running in a vertical plane through the sinus was filled with a small vessel which would account for the diagnosis of fracture by x-ray.

In none of these cases was there a rhinorrhea or a pneumocephalus present. These complications are uncommon. W. H. Johnson reports twenty-one cases of rhinorrhea, six of which were due to injury. In case the frontal lesion is associated with rhinorrhea the treatment, according to Peet, Andrus and Teachenor, is operative. Bromberg Campbell and Gourdjian advise conservative treatment. One must remember that the incidence of meningitis is high although a great many recover spontaneously. Personally I feel that the decision for operation on these cases rest first with condition of patient and severity of fracture secondly. Cerebrospinal rhinorrhea may be associated with pneumocephalus. This is a serious complication. Dandy gives the mortality in untreated cases at 50 per cent. Dandy suggests in these cases to operate by means of frontal flap and close dura. The necessity for this should be guided by condition of patient.

Suppuration in the sinus is a possibility always and should be closely watched for. Should same occur surgical interference is necessary. However, I believe that this complication can be entirely eliminated if surgery is resorted to early as possible in fractures of the skull communicating with the frontal sinus.

### SUMMARY

1. Incidence of frontal sinus fractures is small, but they offer a serious problem to the otolaryngologist.

2. Complications are relatively common; mortality 25 per cent in untreated cases.

3. Frontal sinus is so anatomically and physiologically arranged that complications of extension of infection are possible.

4. Presented 10 cases with 8 recoveries following operation with one death due to laceration of brain. Two cases untreated with 100 per cent mortality.

5. Rhinorrhea as a complication suggests that interference is necessarily due to high incidence of meningitis. Believe operative interference depends on severity of fracture and condition of patient.

6. Pneumocephalus is rare in fractures. Treatment non-operative.

7. Pneumocephalus with rhinorrhea serious complication. Should be operated upon after technique suggested by Dandy. Mortality 50 per cent.

### DISCUSSION

**S. B. Marks**, Lexington: I have seen very few of these cases in my own work. However, I saw the last case Dr. Yates reported and was quite convinced that this boy did have a fracture of the internal wall of the frontal sinus. About all I know of these cases is, as Will Rogers would say, "what I see in the papers."

Dr. Eagleton is a great fellow for asking himself questions and then answering them convincingly. He promulgated certain rules regarding this particular type of fracture, regardless of location. Rule number one was that compound fractures of the skull must first be rendered simple, and he regards fracture of the internal plate of the frontal sinus as a compound fracture because it establishes communication with the cranial cavity, and meningitis may occur because of the low-grade type of mucous membrane that lies in the frontal sinus. Before the injured dura has a chance to close, the rapid proliferation of this membrane invaginates itself into the subarachnoid space through the dura, thus forming an alley-way for the entrance of infection. The same thing does not occur in the nose, because there we have a not easily stripped off dura and a type of mucous membrane which does not proliferate with the same degree of rapidity. Therefore, in this region unless there is very wide separation of the dura, the incidence of meningitis is considerably lower.

He also asks himself the question, how can we tell, in the presence of an injury to the internal plate of the frontal sinus, whether there is an injury to the dura as well? He then proceeds to describe several signs by which this question may be answered. First, nasal hemorrhage. Second, black eye. Third, x-ray findings. Fourth, whether or not there is injury to the cavernous sinus as indicated by exophthalmos. Furthermore, in such cases he recommends listening over the temporal region because a bruit may be present even when there is no exophthalmos. The next thing he looks for is ophthalmic involvement; the vision is tested, visual fields taken and the fundi examined for evidence of pressure upon the optic nerve. Lastly, he says that if no blood cells are found in the spinal fluid there is probably no injury to the dura.

Another rule he lays down is that wherever the dura is injured the case is an operative one, and in repairing the dura he goes so far as to cover it with skin or with fascia lata.

**A. L. Bass**, Louisville: I would like to ask Dr. Yates what experience he has had with rhinorrhoea as a complication in these cases. In more than one instance, following intranasal and ethmoid operations, I have seen the spinal fluid coming down. Under conservative treatment these cases have usually turned out well, but the patients certainly put you on the anxious seat for a few days.

**E. C. Yates**, (in closing): Just a word in regard to draining these cases following operation. Dr. Gourdjian advises closing without drainage. I had an experience in one case which demonstrates the reaction of vaseline upon the dura. This patient developed a temperature of 101 F. with bulging of the wound, which was opened and a considerable amount of vaseline came out, after which the temperature dropped to normal. I am in accord with Dr. Gourdjian that these cases should not be drained following operation.

As to Dr. Bass' question, in 1931 Dr. Don Campbell, of Detroit, reviewed the literature on rhinorrhoea associated with intranasal operations as well as fractures, and he advised conservative treatment in these cases. He says that 90% recover spontaneously. Dr. Johnson, Muscatine, Iowa reported a number of cases, one of which showed that at the time of injury a fistula was established communicating with the ventricle itself and causing this cerebrospinal rhinorrhea. In cases operated upon the mortality from meningitis has been very high. He recommends, therefore, conservative treatment in all such cases.

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**Hernia of Esophageal Hiatus**—Wagner describes the clinical and roentgen results in eleven cases of hernia of the esophageal hiatus in four men and seven women, aged from 44 to 88, revealed on examinations of the stomach made in about 3,000 patients. There were marked dyspeptic and cardiac symptoms in all cases, directly attributed to the hernia in eight.

# SURGICAL TREATMENT OF CONCOMITANT SQUINT*

ADOLPH O. PFINGST, M. D.
Louisville.

When your Secretary invited me to present some practical subject in Ophthalmology I was influenced in selecting the subject of Squint in that I am of the opinion that most of us do not impress the family sufficiently with the importance of surgical treatment of deviating eyes and that we are too prone to leave the decision of an operation to the patient or his parents. While I do not believe that we should force our opinion regarding the surgical interference in the case of the disfigured child, I do feel that we should at least impress those interested with the fact that a turned eye is not alone a cosmetic defect, but that it may handicap its possessor throughout life in a social, economic and psychic way. Children with deviating eyes are, as a rule, shy and self-conscious of the disfigurement, hence they seem diffident and hesitate to look one squarely in the eye. This would incur hardships on the individual in securing employment, aside from the natural prejudice of the employer against a crossed-eyed person. The same drawback would pertain in a social way.

In order that we may confine our discussion to the more practical study of squint I will omit those rarer muscle conditions associated with deviations of the optical axis in a vertical and oblique direction and treat only of divergent and convergent strabismus as we see it daily in our office work.

In approaching squint from the surgical angle there are four questions to be decided: first, to which class of cases should surgery be applied or, in other words, on whom shall we operate and, second, at what age should the operation be done, third, the method of operation best adapted to each case, fourth, the anesthesia best adapted to the case.

1. WHEN TO OPERATE: A careful study of each individual case must be undertaken in order to determine these questions. Naturally, the first thing to do in surveying a case of squint is to determine the nature of the case under consideration; whether it be periodic or constant, whether alternating or unilateral, whether the deviating eye is amblyopic and if so whether amenable to improvement in vision with glasses and whether the deviating eye fixes when the other is screened. It is, of course, essential to study carefully the refractive errors under full cycloplegia so as to get the absolute refractive error. Finally, it is, to my mind, most important to determine the power of rotation of the hyperactive muscle and its antagonist. Careful measurements of the degree of deviation by one of the recognized methods should be made. It is of considerable importance to make these measurements with the patient wearing his full correction and also without so as to determine the amount of squint with the refractive error corrected and how much remains for surgical correction. The history of squint cases should be gone over very carefully—as to the age of onset, whether glasses have been worn and if so, with what result and whether or not the case has previously been subjected to operation. Naturally, each case is a study unto itself.

It goes without saying that every case of squint should be given the advantage of conservative methods of treatment before considering operative interference. Primarily, refractive errors should be corrected and this as soon as practically possible, which means usually, between the second and third years of age. While I may be mistaken in my premise I have never given full correction of the refractive error in convergence with hyperopia when parallelism can be obtained by partial correction. In other words, I have always been of the opinion that a small amount of the spherical error should be left to be overcome by the patient's accommodative effort on the same principle that we would not order correcting lenses in nonsquinting eyes in the absence of symptoms. It is hardly necessary for me to say that in myopes with convergence and hypermetropes with divergence, glasses would be of no avail. In fact, glasses would be more likely to exaggerate the defect, and hence should not be prescribed. In such cases I would advocate correction of the astigmatic error rather to improve vision than to lessen the squint.

The use of atropine in the fixing eye and educative treatment such as occlusion of the fixing eye and orthoptic exercises where such treatment is applicable (prism exercises, stereoscopic exercises for fusion treatment) should be given a full and conscientious trial.

If conservative measures fail, say after 6 or 8 months trial, surgical interference should be considered provided the child has reached the age when operation would be justifiable.

2. AGE AT WHICH TO OPERATE: There has been and is now a vast difference in opinion as to the age at which to operate. Some authors do not hesitate to operate at any age, even at 2 years. Among these I would mention Ballantyne, Hulen, Harman, Valk, Wilkinson and others, while those more conservative, among them Posey, Reber, Meller advocate

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later operation, say from 10 to 15 years. Until recently it has been my practice to advocate surgical interference at the earliest moment that one can secure the co-operation of the patient under local anesthesia. Usually this meant postponement of the operation until the child was about 12 years old. However, I have done the work under local in children as young as 8 years. It was my opinion that where tenotomies were done the extent of the recession of the tenotomized muscle could not be accurately gauged and that the amount of advancement could not be regulated with the child asleep hence such work was more apt to be followed by an overcorrection, or a squint in the opposite direction. In recent years since it has become my practice to reattach the tenotomized muscle with sutures at a point behind its original insertion and thus obtain a more definite recession. Since then I have become reconciled to doing the operation as early as the sixth year of life. I still see an objection to the operating on the very young in that the parts are not fully developed and because results may still be expected from educative treatment and the development of the fusion faculty. In other words, there are still possibilities of spontaneous correction of the squint. Whenever the cases seem hopeless as regards establishing fusion and securing parallelism it would seem reasonable to endeavor to bring about these conditions by getting the visual axes as near parallel as possible by means of surgery and thus check the increasing amblyopia, which usually prevails in deviating eyes. In my judgment convergent cases with only a low degree of hypermetropia and divergent ones with low degree of myopia; cases in which full correction of refractive errors does not straighten the eyes and where conservative measures have failed operation should be advised. In cases of marked convergence or divergence with no fixation of the squinting eye (eccentric vision) and marked squints with refractive errors contrary to the rule and those cases of secondary squint after tenotomies where the treatment is desired for cosmetic results, one should not hesitate to operate at an early age and to do so under general anesthesia.

In considering the surgical means of bringing about an approach to a perfect muscle balance we must view the subject from the standpoint of the effect desired upon the muscle which is being operated. That is, whether it is to be set back of its original attachment or it is to be advanced.

(3) Method of Operation: The original operation for squint, as you know, was a tenotomy of the stronger muscle which had for its object the retrocession of the muscle. For many years individuals with crossed eyes in early life have been made happy and have been enabled to go through life with parallel eyes by employing the simple operation of tenotomy. However, many cases in which a simple tenotomy was done, which means at random recession of the muscle, the operation has been followed by an overcontraction of the antagonist and such cases have gone through life with the eye deviating in the direction opposite to the original defect or they have been faced with the necessity of submitting to a secondary operation later in life. I have been guilty in that particular myself and in my earlier practice had divergence follow tenotomy of the internal rectus more than once. The principle of tenotomy is all right but the inability to gauge the amount of recession is all wrong.

Realizing the great danger of the slipping of the muscle away from the point of attachment after tenotomy and attaching so far back as to allow the eye to diviate towards its antagonist, operators have introduced methods of holding the tendon forward after its separation from the sclera and thus diminishing or nullifying the effect. Some have, by working subconjunctivally, separated the tendon from the sclera without loosening much tissue between the sclera and the muscle and the conjunctiva and the muscle. Herman Knapp was a great advocate of this operation. If it was ever followed by overcorrection I have never seen it nor have I heard of it. However, the result desired unless it is employed as an auxiliary to an advancement of the antagonist, was often insufficient. Others, of which Axenfeld was an advocate, sutured the severed tendon to the muscle stump. All of these methods have a place as an auxiliary to the advancement operation rather than serving as a recession operation. They act by causing temporary inactivity of the severed muscle and thus taking away the pull on the advanced muscle giving it time to take firm attachment at its new position on the sclera. The principle is the same as in the immobility in the muscle brought by plates or splints attached to the muscle as advocated by Wilkinson.

We have employed all of these methods and found them of much service in securing results in advancement operations. However, since we have been given an operative procedure by means of which the amount of recession of the muscle can, at least approximately, be gauged, we have abandoned all of these methods as a routine and have adopted the operation of setting back the detached hyperactive muscle suggested by Jameson. By this means the muscle after it is severed is reattached by its tendon to a definite point backward of its original insertion. Jameson looks upon this procedure which he calls a recession as an entity. We have employed this operation most satisfactorily and since its adoption have abandoned the unmodified or simple tenotomy. The operation is carried out as follows:

First: a vertical conjunctival incision is made pretty far back, slightly in front of the semilunar fold and the conjunctiva undermined towards the cornea but not toward the caruncle. Second: the capsule is buttonholed near the equator (not near the cornea) above the muscle, and a squint hook passed under the muscle and the muscle freed from its surroundings. Third: advancement forcep (Prince or modified) are then placed on the muscle and the tendonous attachment severed from the sclera. The tendon is turned backward and separated from the sclera. Fourth: three 000 12 day chromatized cat gut sutures are then applied. They are passed through the caruncular conjunctiva, about one-fourth inch apart, then through the muscle just behind the advancement forceps or about 1.5 mm. back of the end of the tendon. The middle suture should perforate the muscle about one mm. below its center as this suture is brought back through the muscle from within outward and will thus find room about one mm. above the center. This suture is then looped around the ingoing thread forming a hitch thread. It is then passed through the episcleral tissue for three mm. at a point decided upon according to the amount of recession required. It is then passed through the conjunctiva adjacent to the cornea from within outward. The lateral or wing sutures are placed as the central one, except that they are not hitched around the ingoing thread. They are placed in the sclera parallel to the central suture about three mm. apart. When taken through the conjunctiva they are spread to a point opposite the perforation in the caruncular conjunctiva. Care must be taken in taking the episcleral bite not to enter the sclera proper.

The amount of recession can be approximated with a fair amount of accuracy. Approximately 5 mm. recession would mean a correction of from 20 to 30 degree squint in convergence and somewhat less in divergence. We did all of our earlier cases by approximating the amount of recession but are now employing, for the sake of accuracy, the calipers advocated by Wilkinson and Jameson.

The chief indication for recession operation in convergent strabismus is where the rotation inward is much in excess as indicated by the rotation of the nasal edge of the cornea as far as the puncta or beyond in extreme effort at rotation in the direction of the strong muscle. The operation should suffice provided rotation outward is free but it would have to be supplemented by a resection or advancement of the external rectus in the event of an insufficiency in abduction. In very high degree excess adduction, it may become necessary to set back both internal recti. In divergent strabismus advancing the adductor will often suffice without setting back the abductor.

It is not as important to keep both eyes bandaged after a recession as after advancement as there is not the same amount of pull on the sutures by the antagonist as in cases where the weak muscle is advanced without retroplacement of the antagonist. It is our custom to keep both eyes covered for three or four days depending largely upon the result noted at the first dressing. This is usually done 48 hours after the operation. If possible patients are kept from using eyes for close work for six to eight weeks following a recession. Examination at frequent intervals are advisable during the first months following the operation so that muscle exercises, and orthoptic treatments may be instituted, when found necessary to bring about binocular single vision.

The points to be stressed in recession operation are, first, to work with free exposure of muscle. Second, to avoid separating the conjunctiva from the muscle at the caruncular side and, third, to be sure that the sutures are well placed in the episcleral tissue. I would, at this time like to give credit to my associate, Dr. Townes, who was formerly associated with Dr. Jameson, for interesting me in this operation.

Hyperactive muscles in squint have, as you know, been treated by other methods such as partial tenotomy, either by buttonholing the muscle or incising it laterally. While such measures insure against the danger of overcorrection they have not proven satisfactory in weakening the operated muscle with any degree of certainty. In fact, in most instances they have failed to bring about much if any ultimate result. I am of the impression that very few operators today employ these methods.

In the cases of convergence in which abduction is quite deficient our operation of choice has been advancement or bringing forward the tendon of the exteranl muscle and attaching it closer to cornea. However, the cases of convergent squint associated with extreme convergence the advancement has to be supplemented with a graded tenotomy of the adductor.

It woud be too far reaching to enter into a detailed description of the various methods of advancement, all of which probably have merits. For many years I employed by choice the Worth operation. The objections that I can offer to it are the fact that a portion of the muscle is tied off rather than being held by a loop and the difficulty encountered in removal of the complicated suture.

For some years I have employed a very simple procedure for advancing muscles differing little from the method employed by Jameson in setting back the muscle. In brief it is as follows: Vertical conjunctival incision 10 mm. long somewhat forward of the semilunar fold, muscle caught on squint hook and freed along its edge and a Prince forcep introduced. Double armed sutures upon which a gold plate (so-called Wiener Plate) is threaded is introduced through the flap of caruncular conjunctiva from without inward, the upper thread is then passed transversely through upper half of muscle and the lower one through the lower half of the muscle from 3 to 5 mm. away from the tendon attachment according to the amount of advancement desired (approximately 5 mm would correct 20 degrees if antagonizing muscle is not cut). The threads are then passed through episcleral tissue about 3 mm apart in front of the tendon stump cornealwards for 1 to 1½ mm parallel to each other or diverging slightly. Sutures are then passed through the conjunctiva from within outward and through a gold plate over which the suture is knotted. We use black silk thread (Corticelli B) and transfix the thread. Both eyes are bandaged four or five days. If at the completion of the advancement with the patient under a local anesthetic the eyes are not quite parallel the operation should be supplemented by a recession, the amount depending on the amount of deviation.

The points to be stressed in this operation are to work with a clear field, to be sure in transfixing the muscle that the thread passes well through muscular structure and to be sure that the needles take a good bite of episcleral tissue. Placing of the episcleral sutures anterior to the tendonous attachment is not an easy task as it has to be done under cover of the conjunctiva. We have in some instances resected a portion of the tendon and have placed the proximal end of the suture through the tendon stump and not in front of the tendon.

The disadvantages of advancement as such is that the antagonist or strong muscle draws on the sutured muscle and that the threads may thus cut through their attachment and undo the desired result. This can be overcome by paralyzing the antagonist by close tenotomy or by tenotomizing and resuturing muscle to stump or by the Wilkinson split.

The indications for advancement are cases of concomitant convergent squint where the rotation of the eye outward is much retarded. Advancement of the external rectus would suffice in such cases unless there is a marked overcontraction of the internus, in which event this muscle should be set back. Most cases of divergent strabismus are associated with limited rotation inward and hence, can be corrected by unilateral or bilateral advancement of the internal rectus. In the presence of excessive divergence a definite recession of the externus would be advisable but as a rule it must be done in combination with an advancement of the internus. Those cases of divergence secondary to tenotomy of the internal rectus can nearly always be corrected by advancing the retracted internal rectus muscle. In cases of divergent strabismus with undeveloped fusion faculty and in cases of unilateral amblyopia conservative measures are of no avail. In the periodic divergent squints and at times in latent squints (exophoria) temporary results may be obtained through stereoscopic exercises but eventually most of these cases have to submit to surgery. It has been our experience that better permanent results are obtained in divergent cases by securing a slight overcorrection, as there is a greater tendency to recurrence after operating for divergence than after the convergent cases.

Many operators instead of bringing a muscle forward to a closer scleral attachment overcome muscle deficiency by removing a portion of the muscle and reattaching the shortened muscle to the tendon stump. My first experience with squint surgery was obtained while assistant to Prof. Schweigger of Berlin, who did a large percentage of his cases by shortening the muscle. His method is still a good one for those interested in resection but at present at least in this country, the operation as outlined by Robert Reese of New York is most popular. This operation has been frequently performed in our clinic but for various reasons has been supplanted by the advacement as such or combined with recession.

An objection to resection is the necessity of euting away muscle tissue, thus lessening the range of rotation.

Tendon tucking practically takes out part of the muscle by making the folded or tucked part inactive. A resection would give you the same result without leaving the unsightly elevation of the tucking operation.

4. Choice of Anesthetic: The choice of anesthetic depends primarily upon the age of the patient. Where the operation can be done under a local anesthetic it is our custom to administer by mouth 2-3 hours before the operation three grains of Nembutal, or preferably three grains of sodium amytal, as we find that it quiets the patient and takes the edge off the pain. In very nervous adults we administer hypodermically morphia 1/4 grain and scopolomine 1/150 a half hour before operating. At the time of the operation a 6 per cent solution of cocaine is instilled in the eye to be operated at intervals of two minutes until five instillations are given. We have used novocain hypodermically under the rectus muscle but find that the infiltration of the surrounding tissue makes the operation more difficut. Adults and most children over 10 years old, can be controlled under local anesthesia. Younger chilrren and very nervous and unmanageable adults are operated under a general anesthetic supplemented by instillation of cocaine in the eye.

## DISCUSSION

**Walter Dean,** Louisville: I first had the privilege of reading Dr. Pfingst's paper this morning. It is a perfect presentation except in one or two places he has not emphasized his inferences. For instance I asked him if glasses straightened eyes, does he agree with Dr. Post, our guest speaker of a year ago that parallelism should be produced by operation so that glasses can be dispensed with if the eyes are approximately emmetropic. He said "no" which agrees with Dr. Peter's stand at our Louisville banquet this year. It is significant that Dr. Pfingst, Dr. Peter and Dr. Post voluntarily chose the subject of squint. They undoubtedly feel that the subject is neglected and misunderstood by practitioners and parents and that our own members need to be stimulated. Some of the neglect has been due to our timidity while the subject was in a state of flux. Now that we have perfected a system of refraction under cycloplegia, measurements with and without cycloplegia, fusion training, fogging the favored eye etc.; and that operations for advancement of the weak muscle and recession of the strong spastic muscle can be played against each other with almost mathematical exactitude, we can take pride in our preparedness.

Jameson's recession has placed the technic on a more physiologic basis. The weak muscle is advanced and the contracted aggressive muscle is temporarily paralized and then handicapped by placing it in a position of shorter pull. This balances and relieves pressure. In a recent discussion, I stressed the importance of correcting squint for purely economic reasons. The squint gravitates socially and economically. The lower he descends industrially the greater the hazard to his good eye, and the greater the constant fear of catastrophy. He would not be engaged for employment if his employer penetrated his condition and realized that if a one-eyed man loses his good eye, the business takes a six thousand dollar debit. The moral is plain: Begin the management of these children just as soon as squint becomes manifest. What reason could be advanced for waiting a month?

**F. C. Thomas,** Lexington: Dr. Pfingst's paper is on a very timely subject and I have thoroughly enjoyed hearing it.

I would like to emphasize what he has said concerning the importance of not being satisfied with merely obtaining a good cosmetic effect; we must keep in mind also the danger of blindness.

I think these cases should be taken care of as early as possible and that, in a vast majority of cases, satisfactory results can be obtained by means of refraction and proper exercises.

**D. M. Griffith,** Owensboro: I do not hesitate to put glasses on an infant a few months old and, strange to say, in a majority of instances after the child has worn glasses for a while, it will cry when you take them off. Of course, occasionally, you will find a child five or six years old who will not wear glasses under any circumstances. I recall one case in a child of six, that was brought to me from Cloverport. I told the doctor I would not accept the case unless it was agreed that the child be refracted at least once every four months for a period of two years. I insisted upon this because I did not know whether I could get full correction the first time or not. I refracted that child every four months regularly and thus kept up full correction and his eyes straightened completely.

The trouble in the average case is that the parents will not spend money enough to get the job done right. I do not undertake to correct squint in small children with glasses unless the parents will agree to let me refract the child often enough to obtain satisfactory results. I am convinced that results are much better with frequent corrections.

**A. O. Pfingst,** (in closing:) Dr. Dean has told you that Dr. Davis, of Washington, advocates operation irrespective of the existing errors of refraction. I had the pleasure of hearing Dr. Davis present his subject to our Section last year, and was impressed with his paper. However, I could not at the time, nor do I now subscribe to the principle of treating squint surgically in the event parallelism can be obtained by the wearing of correcting glasses. In fact, I advocate full correction of the refractive error in squint, and in those cases in which the glasses reduce the amount of the squint but do not correct it entirely, and operate with the view of correcting only the amount of squint which glasses fail to correct.

By fully correcting squint surgically in the presence of high degree errors of refraction the individual will, almost with certainty, later have an over-correction which means the development of a squint in the opposite direction. This usually occurs when the individual begins wearing glasses for purposes other than the muscle defect.

In ametropic eyes we are justified in resorting to surgery at any time. We have all seen ametropic children gradually develop myopia, so that even in the presence of ametropia patients operated early for convergence may develop a secondary divergence.

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# THREE TYPES OF DEAFNESS*

WALTER DEAN, M. D.

Louisville.

A few days ago one of our members asked me if I was reading a paper at this meeting and I said "Yes, on deafness." He commented "That's a hell of a subject," and I replied "It's a hell of a condition." You will agree that we were both exactly right.

The thing about Hans Bruner's visit that clings to me longest is his criticism of our ear treatment. He marveled at our enduring enthusiasm in treating deafness but marveled more that we made so little effort to diagnose and classify our cases. Isn't it true? Putting outside our discussion congenital deafness, and nerve deafness due to trauma, chemical poisons, syphilis, measles, scarlatina, influenza, mumps and epidemic cerebro-spinal meningitis, I would like to divide the remaining cases into three groups. The first, chronic adhesive process; the second, otosclerosis and the third, the primary nerve deafness of the senile. Beginning with the last, I read recently that senile deafness has been known to begin at thirty. Dan Mackenzie says that "As with other phenomena of senility, senile deafness may at times set in while the patient is otherwise still comparatively youthful." Abiotrophy is a term I have not yet learned to know well as I have only run across it twice, once in the etiology of senile cataracts at an early age and once in an article on progressive muscular dystrophy. I think it means premature trophic failure due to some hereditary predisposition to weakness in an organ, this probably due to an inferior functional quality of the vasomotor system. The affected organ completes its cycle before the other organs of the patient are old. We personally know families in which cataracts and other eye degenerations occur early idiopathically. We know of other families where the same thing happens to kidneys and hearts. To the focal infection minded this explanation is superfluous as is also any speculation about the sympathetic nervous system, internal secretion or any of the other mysterious functions of the body. Senile deafness develops insidiously in the cochlear mechanism and may lead to severe deafness. It is not complicated by tinnitus. I know of no other cochlear degeneration without tinnitus. Naturally there is no treatment for atrophy. It is our duty to attempt to rejuvinate the patient as best we may.

The chronic adhesive processes are mostly due to the travail of youth with its adenoids and tonsils through coryzas, influenza and the exanthemas. Bezold says "It is fair to suppose that there is hardly a human being in whose middle ear there was not pus once or several times." He further adds "The great majority of these inflammatory processes in the ear do not cause a perforation through the drum membrane or through any other part and even run entirely hidden from our clinical observation." A few years ago when I knew less about Bezold and less about ears especially babies' ears I could not have accepted these remarks. In 1905 Bezold was teaching his students in Munich "that in more than 80% of all infant cadavers of less than six months, variable quantities of partially purulent secretions were found in the middle ear," meaning the middle ear cleft and not just the tympanum. He gives credit to VonTroeltsch for establishing thirty-five years before then that "inflammatory changes with gathering of secretion in the middle ear are found in nearly every postmortem examination of infants of the first few years."

The otitic catarrhs and suppurations of childhood make the hyperplastic connective tissue and the inflammatory scars of obstructive deafness. Fighting these processes is our forte. How can we best fight them? By teaching the practitioner some of the practical things we know about ears, sinuses and throats. By making a study of babies ears. By detecting malnutrition due to bad feeding in a land of at least plenty of food and allying ourselves with the family doctor and the parents against children with perverted appetities. By forgetting about allergy long enough to boost the air conditioning game even if it has to be a rudimentary attempt. By removing adenoids and infected tonsils and getting the teeth conditioned. By treating ears over the hard places by early myringotomy and practical instruction about aftercare to the nursing member of the family. By keeping people whose respiratory membrane just won't tolerate water especially infected water out of swimming places. By teaching parents to hide their children from colds and the exanthems. Children can be taught decent personal hygiene so it will mean something to them. Many cases of established chronic suppurative otitis media can be cured for years at a time by persistant local and general treatment. This may relieve the deafness to some degree or it may not because scar tissue seems to be made more elastic by being bathed in pus. In either event the suppuration should be controlled since a chronic suppuration leads on to greater deafness eventually, if not to intracranial complications. If our treatment of pharynx, tube, and open drum with of course attention to diet, hygiene and contributory organs does not heal the ear, then which ever kind of mastoid operation is indicated should be performed. We don't do this nearly enough. It's partly the patient's fault. So many patients are like children. They want a hypothetical sinus condition operated because it's a glamorous new idea to them, but they treasure their old running ears. It's hard to bust up an old Spanish custom. It isn't hard to diagnose uncomplicated obstructive deafness of cicatrical origin. But it is not unusual for the cochlea to become degenerated secondarily. Such cases in certain phases are impossible to differentiate from otosclerosis as both have conductive and perceptive lesions with identical symptoms of deafness, tinnitus, paracusis and even vertigo. The old conception that chronic adhesive process caused oto-sclerosis is abandoned by everybody. Bezold said over thirty years ago "we can hardly expect the pathogenesis of this peculiar disease, otosclerosis, will ever be satisfactorily explained, so much more so as its clinical and pathological picture has no analogy." Siebenmann's investigations lead him to believe that oto-sclerosis is a developmental abnormality rather than a disease in the ordinary sense. Mayer believes it is a tumor-like hypertrophy originating from a primarily faulty anlage. Wittmaack believes it the end product of a dystrophy caused by venous stasis. Gray maintains the theory that the disease is a degenerative process involving the organ as a whole and is due to an inherent defect in the neurones concerned in the function of hearing. The neurones involved include the neurones of the vasomotor system and this results in deficient blood supply of the organ of Corti, the nerve fibres of the cochlear nerve and the bony capsule of the labyrinth. Then there is the theory that the pathology is due to an abnormal continuance of the progress of growth in the petrous bone. Some think it is an endocrine anomaly, a result of toxemia, a result of anemia, a lack of calcium, a lack of phosphorus, lack of proper vitamins during embryonic growth. After having read the thousand page report of the American Otological Society your essayist is no smarter than before, with few exceptions. I had been of the impression that operations like pregnancies whip up the pathological process. I find the concensus of opinion is that operations against septic foci are justifiable, care being taken to minimize shock and hemorrhage. Perhaps my outmoded viewpoint was conceived in cowardice by the fear that the patient would date all subsequent losses of hearing in this progressive ear disease from the date of the tonsil or sinus operation. With a ninety thousand dollar report in two volumes behind us, we lost this fear. I ran across a good suggestion by Frazer in Logan Turner's text book. He advises if the head noises get too maddening in the quiet of the night, that a ticking grandfather clock be placed in the bedroom. Trading a Remington for an Oliver. A man could leave his noisy office, rattle home in his 1927 car, listen to the radio and then go up and sleep with his clock.

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*Read before Eye, Ear, Nose and Throat Section, Kentucky State Medical Association, Paducah, May 15, 1933.

Deafness and head noises are twin scourges. Deaf people are under a terrific mental strain. People who are not deaf cannot sense the economic and social dilemma of a business man or woman who first experiences auditory strain in church or theatre, then in a small gathering of friends, then is confused if as many as two people talk to him or her at once. Or the physician who cannot hear fetal heart beats, or chest or heart sounds or cannot use the spygmomnometer. We may prevent or check the chronic adhesive type but we know nothing specific to do for the progressive deafness of oto-sclerosis. Shambaugh states that one in three of his ear patients has oto-sclerosis. Bezold statistic showed seven per cent. Either way it is a huge responsibility for us. The atypical type is particularly difficult to diagnose since the stapedial ankylosis comes after the nerve changes. Sometime ago I suggested to myself that I quit eliminating deaf patients after a single examination. No otologist can fully understand the intricacies of a diseased ear in one examination or a short series of examinations. Pathologies may be so multiplied that the examiner finds it most difficult to apply his knowledge of inflammatory adhesions, fibrous hyperplasias, oto-sclerosis, the nerve deafness of syphilis, measles, scarlatina, mumps, the deaf islands of consanguineous marriages, the simple senile atrophy et cetera to a given case. Until the patient has reached the earhorn stage, the otologist has got to try, and even then he still ought to try to conserve the precious remnant as long as possible. In pure oto-sclerosis there is not one technical thing for us to do to the ear itself. But we can help to divest the patient of suppurative foci and send him to the medical man for iodides, phosphorus and calcium for pituitary, parathyroid or adrenal gland therapy, and not let him get too tired and not let him believe the tinnitus is caused by a brain affection which will make him crazy. He needs to know how large his group really is. He would be consoled to know that a large number of cases become stationary, that only a small percentage of cases become very deaf and that in any event the process is almost always slow. The patient needs an internist and an ear guardian. Otherwise he will gravitate to the scum of the medical profession and have his ear and nose bones removed or waste his money on x-ray therapy and diathermy.

In 1870, '80, and '90 the leaders in otological thought did myringectomies, tenotomies, ossiculectomies and made windows into the vestibule but without permanent good result. Later they condemned these procedures, x-ray therapy was applied to the labyrinth capsule without beneficial result, and is now discredited. Stimulating doses of x-ray are used over the thyroid, parathyroids and gonads in indicated cases. Just as Bezold prophesied, oto-sclerosis remains an enigma. There is no rational treatment as we do not know what the disease is. Empirical treatment has had no luck. No case has ever been cured. So we have quit trying to treat the disease, (or perhaps it is only one local manifestation of a disease) and decided to cure the patient of whatever else he has. Some authorities state that correction of metabolic abnormalities has seemed to arrest or retard the process since hearing has improved or stayed level. This again may be deceptive because as Bezold observed many untreated cases become quiescent for months or years. He felt that his friend Siebenmann's phorphorus treatment was of doubtful benefit. Still phorphorus has survived and is now being administered with cod liver oil. Cod liver oil is also used without phosphorus. Vitamins are being strongly emphasized. In pregnant oto-sclerotic women ovarian and thyroid extracts should be administered with calcium and a diet rich in vitamins. This is rational since the speculation persists that oto-sclerosis is a congenital deficiency disease conceived in the two months of embryonic life. Some gifted old time investigator said it was due to intra-uterine rickets. At any rate, the effort is well founded as the disease passes down mostly through the female line. The hearing of oto-sclerotic women is shocked by pregnancy and it is expected that this very early prenatal care will go to neutralize this loss. Alexander feels that syphilis might be a factor in oto-sclerosis and he states that anti-syphilitic treatment is indicated in pregnant women with oto-sclerosis to prevent the progress of their own ear disease during pregnancy and in the hope that it would prevent "the formation of an ear organ of low value in the developing embryo." Your essayist found little mention of syphilis in this connection in the literature of the past twenty years, except the well known fact that it activates oto-sclerosis. It would be dangerous for me to state dosage and duration of administration of the various drugs and organ extracts. Each case must be individualized. Each gland of internal secretion must be examined for hypo or hyper-secretion by experts, and treated by them. The initiative must come from us. We each have a lot of these patients to send to the doctor. I would like to say in closing that I have long known and admired our guest speaker's original sinus work. I could safely prophesy that if rats or guinea pigs could get oto-sclerosis, Dr. Dean would unbaffle this problem within two years.

## DISCUSSION

**H. G. Reynolds**, Paducah: While I was notified several weeks ago that I was to discuss the subject of "Three Types of Deafness," and promised a review of this paper, it was only on last Friday morning that I had an opportunity to find out just how it was to be handled. Consequently, I had no opportunity to review the literature which would have been particularly interesting in the case of oto-sclerosis, which is in the minds of most of the profession at the present time, in the matter of research.

I think it requires no little courage on the part of the essyist, to discuss a subject of this type and I want to congratulate him on his success in condensing a great deal in a very small space. I shall only attempt to touch on some of the remarks of the essayist. In the first place, I want to agree with him fully in what he has to say regarding the diagnosis of chronic deafness. Furthermore, we are rarely ever justified in arriving at a definite diagnosis of oto-sclerosis at our first examination, except where the evidence is so frank that there can be no doubt. I think we are frequently justified in having our patients return from time to time, and if necessary, delude them with the idea that they are coming for treatment, when as a matter of fact, we are only making a study to classify their disease.

Even the history itself is sometimes misleading. As in a case related by Rutin, in which a young woman came with a definite family history of oto-sclerosis. She was studying music and was desirous of marrying and came particularly to know if she should continue her studies and whether or not it was advisable for her to have children. He was convinced on his first examination that it was a definite oto-sclerosis but because of the circumstances surrounding the case, he felt that he should make a further effort and be sure that there was no mistake in his diagnosis. He advised treatment which was followed out and in the course of time, the woman's hearing returned to normal. She had three children and twenty years afterwards there was no evidence of deafness in either the mother or the children. This was of course, a wrong diagnosis and emphasizes the importance, when we tell a patient that they have an oto-sclerosis.

Contrary to the conclusion reached by the essayist following the report of the last American Otological Society, as late as April last year, Rutin made the statement that the Otological Society of Vienna had petitioned the Government for the right to interrupt pregnancy in the presence of oto-sclerosis.

It would seem from the study of oto-sclerosis, that we are never born with it but that it may appear earlier in life than is generally admitted, seems probable. One case has been reported in which the bone changes appear as early as four years, but as a rule in our practice, the ages of 16 to 30 years are the ones in which you are most likely to find oto-sclerosis. It is nearly always progressive and unusually bilateral. Some men hesitate to diagnose oto-sclerosis unless it is bilateral.

I have a patient at the present time who gives a definite history of head noises, deafness, normal ear drum, deafness for low tones, positive Rinne, no history of middle ear suppuration, Webber going to the right ear. Up until last year, her hearing, as far as she knew, (she was a stenographer) was perfect in the left ear. At that time she had an attack of influenza, since which time her hearing has gradually left her. She has been under the treatment of two excellent otologists and finally came into my hands about a month ago.

She has tinnitus in both ears. Both ear-drums normal in appearance, a loss of low tones and in my opinion, has an oto-sclerosis complicated with a chronic catarrhal deafness.

I am reciting this case simply as an illustration of what may happen in any case of oto-sclerosis, that is an attack of influenza bringing on the picture that we choose to call oto-sclerosis.

Rutin describes a sensation which he calls the butterfly sensation, which is a tickling around the eyes and ears. This is an observation I have never made and I would like for someone discussing this paper further to enlighten us on this symptom.

Another symptom that I have not been able to make out in many instances is the Schwartze symptom, as it is called, and is characterized by isolated areas of hyperemia in the mucosa covering the promontory as seen through an atrophied, transparent drumhead.

Further observation is made that paracentesis' have been done in cases of oto-sclerosis without an anesthetic because of the pressure of hypo-esthesia.

Another symptom pointed out by Rutin is that when you tickle a normal drum membrane with an applicator you find it is sensitive of course, but in an oto-sclerosis there is no sensation.

The conclusion the essayist has reached as to treatment, I think we are all thoroughly in accord with, but at the same time I question seriously the judgment of any otologist who turned such a patient away from him without any hope.

I am looking forward to the address by our invited guest this evening whom I am sure will bring us much of interest in the way of diet that may have a bearing on this subject under discussion.

**R. H. Cowley**, Berea: Dr. Dean has very accurately described the mental distress experienced by the individual who has to sit in a room and hear about two-thirds of what is going on.

I think every otologist should know as much as possible about lip reading and encourage his deaf patients to practice it. It is certainly a wonderful help. I believe we are all more or less unconsciously lipreaders, as witness the fact that many persons cannot fully understand a speaker when their back is turned towards him. However, there is a science of lip reading and it should be known and taught by every one who has to deal with deaf people.

**E. C. Yates**, Lexington: I would like to call the attention of the Society to Dr. Gotlieb's work in connection with the catarrhal type of deafness. In a study of 120 cases that came in on account of gall bladder disease, or pancreatic disturbance, he made otological examinations in these cases, using an audiometer and all of them and showed an associated deafness in all of them.

Dr. Gotlieb working along similar lines, recorded 26 cases of deafness which were remarkably benefitted by the administration of pancreatic ferment and bile extract. He says there is a definite syndrome in all these cases and his work is fairly conclusive.

Personally, I think considerable progress will be made along this line in the future. I have endeavored to work it out in several cases with a fair degree of success although the number of cases I have had (four) is not sufficient to warrant any definite conclusions.

**S. B. Marks**, Lexington: I would like to emphasize one point tnat has been brought out by both Dr. Dean and Dr. Reynolds; that is, do not give these cases up too soon. I have had one case in particular in which this was vividly impressed upon my mind.

This patient. a girl, about 25 years old, had been deaf ever since she had measles at the age of three. The condition had progressed slowly for a number of years and she had finally become entirely deaf. She had consulted some of the best known otologists in the country some years ago and received no encouragement whatever. She came under my observation about a year ago. Her father is a physician, and I made an agreement with her that she would continue to come to me for treatment until I told her to stop.

All I could find on physical examination was that she had a well-marked deafness, involving both the conductive and receiving apparati. The drums were retracted plus-3, with not very much thinning. Her tonsils and adenoids had been removed and there was no infection anywhere that I could discover. Upon examining the tubes I found that they would not admit the smallest urethral filliform dilator. After about three weeks of patient effort I was able to introduce a No. 1 flexible silver bougie into the tube. The girl's improvement under this method of treatment has been very gratifying. By the time I succeeded in opening the tubes sufficiently to admit the silver bougie, she was sitting in her room one night and heard the telephone ringing in another room. She continued to improve until finally she could hear a radio when turned on rather loudly. A radio is a good thing in these cases. You can adjust it to suit the hearing, and as the hearing improves you can turn the radio down or move the patient farther away from it.

This girls is an expert lip reader, but her hearing has now improved to such an extent that she can carry on a normal conversation at a distance of ten feet. She visited her brother, who is also a physician in the East, and he was impressed not only by the improvement in her hearing, but even more by the improved phonetic quality of her voice over the characteristic loud, flat tones of the average lip reader or deaf person. I believe the final result will be that she will have about one-third perfect hearing.

I have seen a number of other cases. not quite so bad as this one, show improvement under the same treatment particularly in the presence of marked stenosis of the Eustachian tubes. It is necessary to begin with the smallest type of dilator and gradually increase the size, and not infrequently you will find that after some improvement under the use of the dilator, there will be a retrogression and you will have to begin all over again.

**J. D. Williams**, Ashland: In view of the importance of this subject, any suggestion that may be helpful is worth while.

I have found that in children in whom adenoids had been thoroughly removed, there is not infrequently a tendency to the development of a pharyngeal lymphoid overgrowth afterwards, and in this condition x-ray therapy has been very helpful in my practice.

**Walter Dean,** (in closing): I am obliged to Dr. Cowley for reminding me of lip reading. It is a difficult art to learn. There are many schools and individual teachers scattered throughout the land and we should take the initiative in sending patients to them when severe deafness seems imminent. Dr. Marks' case report shows the value of persistent skilled treatment in obstructive deafness. It is unfortunate that no such improvement can be accomplished in inner ear disease. Dr. Yates contribution about the administration of pancreatic ferment and bile extract comes within the scope of internal medicine and is in line with my recommendation to treat the ears by treating the patient.

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**Henle-Atbee Operation in Tuberculosis Spondylitis**—Bauer and Jenner present an analysis of eighty-four cases of tuberculous spondylitis treated at the Gottingen clinic by the Henle-Albee operation. The aim of the study was to determine the end-results as seen in the roentgenogram and the question of deformity as well as of ultimate cure. The patients were followed up from six to sixteen years. The authors state that the operation can be considered only in cases in which the outlook for a cure under conservative management is quite good. They point out that the operation does not remove the diseased focus, that a certain amount of damage to the focus is unavoidable, and that the operation cannot prevent deformity of the diseased adjacent vertebrae. The late results are, if anything, somewhat inferior to those obtained by the conservative management in cases of the same age, and of the same gravity. In their opinion, the operation has failed to meet its indications. It has not been performed in their clinic in the last six years.

# DETACHMENT OF THE RETINA*

H. D. ABELL, M. D.

Paducah.

A very satisfactory result following a comparatively new surgical procedure for detachment of the retina, is the chief reason for this case report.

The patient was a white male, age 44, occupation boilermaker. An intra-ocular foreign body was removed from the left eye June 8th, 1932. The patient made an uneventful recovery from this injury. He was seen again on July 24, 1932, at which time his corrected vision was 20/20 in each eye. About three months after returning to work, he noticed that his vision in the left eye was failing very fast. He was next seen on January 13th, 1933. At this time his corrected vision was 20/20 in the right eye and 20/200 in the left eye. Examination at this time showed a rather large detachment of the retina in the lower nasal quadrant. He was put to bed and kept under medical treatment for about four or five weeks. There was no improvement in the vision following medical treatment, so we decided to resort to surgery.

On February 25th, 1933, under local anesthesia, a Guist or modification of the Guist operation was done as follows: A wide conjunctival flap was made below. A good exposure was made by doing a complete tenotomy of the inferior rectus muscle. Six trephine openings were made through the sclera with a one and one-half millimeter trephine. These trephine openings covered a circular area of about ten or twelve millimeters in diameter. The choroid was cauterized through the trephine opening with sodium hydroxide. This was neutralized with one per cent acetic acid solution. One trephine opening was made near the center of the operative field and through this opening, the choroid was punctured and quite an appreciable amount of straw colored fluid escaped. The opening in the choroid was made with the point of a semi-sharp wire applicator. There was no loss of vitreous and no hemorrhage following the puncture of the choroid. The inferior rectus muscle was sutured back together with black silk and the conjunctiva closed with an uninterrupted suture.

Atropine was used in the operated eye and both eyes bandaged. He was kept in bed fifteen days and the pupil kept dilated with atropine and he was given foreign protein therapy at two or three day intervals.

The patient made an uneventful recovery and the vision a few days ago was 20/20 in the right eye and 20/40 in the left eye.

## DISCUSSION

**H. G. Reynolds**, Paducah: This is the first time we have ever done this operaton for detachment of the retina, and the result so far has been most gratifying. Of course, one case does not mean anything in particular, because in the next one we may have a reattachment of the retina with little or no improvement in vision.

With this case in mind, however, it is an operation that I would prefer under all circumstances because of its simplicity and because one does not have to be certain as to the location of the tear in the retina.

Perhaps the result in this case has made me a little over-enthusiastic.

**Adolph O. Pfingst**: I was very glad to hear Dr. Abell's report and wish to congratulate him and the patient on the outcome of the case. This result should encourage Dr. Abell as well as the rest of the members of the Society to approach cases of retinal detachment surgically even though his percentage of cures will be cut down with the addition of more cases. While I am not quite sure of the statistics I believe that in the hands of the operators who have treated most cases of detachment surgically, and that does not represent a great many cases, recovery has occurred in somewhat over 25 per cent of those operated. A year ago in my discussion of Dr. Dean's paper on detached retina, before this society, I mentioned the fact that we had not encountered a single case early enough after onset of the disease to justify us in suggesting operation. However, since then we have operated three cases. In the first case the operation of Gonin was done, this in a lady aged 70 years, four weeks after the retina became detached. We endeavored to place our trephine holes as near the retinal tear as possible. The result in this case was most promising and when the patient left the infirmary the retina was in its normal place and patient had 20/40 vision, vitreous opacities were marked enough to account for the imperfect vision. Three weeks later there was evidence of recurrence at the lower end of the operated field. Patient refuses a second operation and she now, after 6 months, has a good sized detachment with visual acuity only 20/200.

The second case representing a small detachment upward and outward, occurred in a man of 64 years of age. The eye was operated four days after the visual defect was first apparent. After tenotomizing the superior rectus muscle eight trephine openings with 1½ mm. aperture were made over the area of the detachment. In making the third opening liquid escaped from the wound making the completion of the operation difficult owing to the softness of the eye. The apertures were cauterized with a very brief application to the opening of the small cautery point. This case was a complete failure, the detachment recurring even before the patient left the hospital, three weeks after operation.

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*Read before Eye, Ear, Nose and Throat Section, Kentucky State Medical Association, Paducah, May 15, 1933.

The third case occurred in a male 54 years old, who had noticed a blur in the temporal side of his field for three weeks. There was a distinct retinal tear present and a moderately large detachment, upward and outward. We employed the Guist operation but instead of using a trephine we made four incisions on each side of the tear with the point of a small keratome about 3/16 in. long through the sclera, then perforated the choroid through one of the openings with the knife. This man cooperated very readily, remaining in bed for three weeks and in the infirmary for two weeks longer. It is now seven weeks since the operation and the retina has a normal appearance, vision=20/20 plus.

While we do not believe that these cases necessarily have to be subjected to operation in the first few days we do believe that the early cases offer much the best chance for recovery and that cases with very large detachment of long standing do not offer enough hope to warrant the operation and the trying bed arrest to which we have to subject them. The age of the patient and the early period at which he was operated were factors favoring the splendid result reported by Dr. Abell.

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**Kline Test for Syphilis.**—Smith made a comparative study between the Kline test and the Kahn and the Kolmer modification of the Wassermann reaction on 3,600 blood specimens. These serums were inactivated at 37 C. for thirty minutes. The Kolmer and Kahm tests were run according to their respective technics. The Kline emulsion was made up according to the formula given in the October 1932 issue of the Journal of Laboratory and Clinical Medicine. Of the 3,600 specimens tested, 2,039 were negative and 962 were positive in all three tests thus giving a complete agreement on 30,001 tests, or 83.69 per cent. The Wassermann and Kline reactions agreed in 87.09 per cent, the Kahn and Kline in 84.69 per cent, and the Wassermann and Kahn in 90.21 per cent. Of the serums tested, 599, or 16.31 per cent, failed to agree in one or more of the three reactions. These serums were classified as proved syphilitic, treated or untreated; doubtful syphilitic, treated or untreated, and nonsyphilitic. The author concludes that his work proves the Kline test to be an accurate serologic test for syphilis, having certain distinct advantages over the Kahm, Kolmer and Wassermann.

# A MOVIE FILM ILLUSTRATING TRACHOMA AND TRACHOMA WORK IN THE WHITE PEOPLE OF THE UNITED STATES*

ROBERT SORY, M. D.

Richmond.

The film I shall present concerns trachoma not in the Indian or the immigrant but trachoma in the native white people of this country whose ancestors have been in the United States one hundred years or more. Trachoma is a disease producing much blindness and is a public health problem because of the blindness produced and the great amount of near blindness. Trachoma today is found more in the isolated country districts and is not very frequent in our large cities.

This film is produced by the United States Public Health Service in co-operation with certain State Health Departments. It was produced with the idea in mind of making it of interest to the general practitioner, to the laity and to the eye physician.

The first reel deals with defining the disease and with the field problem. The second reel deals more with the operative side of the disease.

The study of the cornea in trachoma is very important, probably more so than the study of the lids. Pannus develops much earlier than formerly thought. It probably develops within the first three months of the disease, at least enough to be seen with magnification and illumination. It is the effect of this disease upon the cornea that produces blindness.

Entropion is a late phase of the disease and occurs in only the minority of cases. It is not necessary for entropion to develop for blindness to occur. All age groups show involvement with trachoma. It is not confined to any one age group.

The field nurse is a very necessary agent in the fight against trachoma, as many of these trachoma individuals will not seek treatment, but must be found and their confidence gained before they will come into the clinics or hospital.

The trachoma eradication program is founded on three points; first, case finding, in which the field nurse is very useful. Second, teaching of proper hygienic habits. The field nurse is again useful here, and during the period of hospitalization proper hygienic habits are insisted upon. Third, treatment of the active cases.

Unless one has seen much trachoma, one can not realize how virulent it can be at times. In this particular case pannus was well developed which might be called generalized, in both eyes in an 18 months old infant, in fact cornea was about to perforate. The disease greatly resembled in this case gonorrheal ophthalmia. A canthoplasty and grattage was done on each eye on this girl.

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*Read before Eye, Ear, Nose and Throat Section, Kentucky State Medical Association, Paducah, May 15, 1933.

In 1913 co-operative effort was started between the United States Public Health Service and the Kentucky State Board of Health to eradicate trachoma in Kentucky. This work has gone on in Kentucky since that time. About 10,000 cases of trachoma have been seen since the work started. Several small hospitals have been maintained at different times in Kentucky.

## DISCUSSION

**Adolph O. Pfingst:**. I am much impressed with the splendid work which is being done by the public health service in trachoma and with the relative infrequent occurrence of the disease as compared with former years. I am fully convinced that I see trachoma in my practice with a great deal less frequency than I did 15 and 20 years ago and I think that the health service should be given full credit for their part in this change. I recall when in 1914 the federal government sent physicians to Kentucky for the first time to combat the ravages of trachoma. It was evident that these officials were not very well versed in the diagnosis of the disease and that they included in their statistic of trachoma a great many cases of folliculosis and follicular conjunctivitis, which were frequently found prevalent in children who were segregated, as in school rooms, or orphanages. The oculists of Louisville had a considerable controversy with the federal surgeons, but finally convinced them that the cases they reported were not all cases of trachoma and that most of them would yield to treatment with astringent drops and with restoration or normal smooth conjunctival membrane without operation. It is true that these public health physicians were handicapped in that they would examine their cases and would leave the community, hence, they were not granted the opportunity of follow-up study.

I am of the opinion that it is impossible to differentiate between follicular conjunctivitis and trachoma in the early stages and that the clinical course alone will answer the question, hence, the course pursued by Dr. Sory in studying his cases in clinics held at the source of the disease and having them brought to the clinic in Richmond for further study and operation when indicated, makes an appeal to me.

I am glad that the essayist stressed the importance of the operation of canthoplasty in the old cicatricial cases. To me this operation has always appeared as one of the most useful operations in the domain of ophthalmic surgery. It is simple in its technique, can be readily done under local anesthesia and is nearly always followed by marked improvement in those old cases with scarred lid and pannus.

Dr. Sory's pictures were very interesting and will be of service in presenting the subject of trachoma to the general medical profession and also to the lay public.

**S. B. Marks**, Lexington: We have seen on the screen the gift of Mrs. Irwin to the Kentucky State Medical Association as a memorial to Dr. McDowell. I also see the picture as a memorial to the late Dr. J. H. Stucky, of Lexington, whose great work in the fight against trachoma is so well known. So many of these patients came to him at Lexington for treatment, most of them without funds, that he became very much interested in the tracnoma problem. He went into the mountain fastnesses of Kentucky, riding mule-back, ofttimes through mire and water, in his quest for knowledge and his desire to do something for these trachoma patients. He then took the question to the national societies and aroused the interest of other men, some of whom he took into the mountains and showed them the effects of the ravages of this disease, and finally, through the State Board of Health, secured the co-operation of the United States Public Health Service in the campaign against trachoma. Therefore, I view this picture as a memorial to Dr. Stucky and his great work along this line.

**D. M. Griffith**, Owensboro: This subject is very interesting to me because I have had occasion to see quite a bit of trachoma.

I would like to ask Dr. Sory how often he uses the nitrate of silver applications and if, in a beginning case where there is considerable granulation, he would do a canthoplasty?

Dr. McMullen and Dr. McCormack came to Owensboro years ago and among others inspected the school attended by my son, whom I had admonished not to reveal his identity to the doctors. During the course of the inspection they came to him and after turning the boy's lids, the doctor remarked, "Here is an interesting case that has been overlooked, but would probably have been detected if the boy had ever complained about it. I wonder whose boy he is?" One of the doctors laughed and said, "That is Dr. Griffith's boy." The condition was fully corrected by treatment.

One of the first cases I had was from Butler County, which is one of the few counties in Kentucky without a railroad. This patient was an old man who came to me with terrific granular involvement. I operated on him everting the lids and taking the eye-lashes off his eye and he went home. He was apparently so poor that my office nurse placed no charge against him. Later he came back and I operated on the other eye. On that occasion he wanted to know why the doctors in Louisville and Nashville that he had consulted had not relieved him. I did not tell him so but I thought it was probably because he looked so poor they did not care to fool with him. Then he asked me the amount of my bill. I told him I ordinarily charged a certain amount, naming a rather considerable fee. To my astonishment he pulled from his pocket a large roll of tens and twenties and proceeded to pay my bill, and since then he has sent me a large number of patients from that county.

Dr. McMullen and Dr. McCormack asked me to inspect Muhlenberg and Ohio Counties, as they were unable to go there. I visited those counties and inspected hundreds of cases and it was upon that report that a hospital was established at Greenville, which was, however, discontinued several years later.

I am to operate in a few days upon a case from Muhlenberg County, a territory from which we used to get a large number of trachoma cases but where the disease is now apparently under control. This case has sprung up in a well-to-do family on the border edge of that territory, and I am sure that it must have come from direct contact.

Dr. Pfingst, in his discussion, has opened up the old question of differentiation between true trachoma and follicular conjunctivitis. Some authorities hold that follicular conjunctivitis will eventually become trachoma, but it does not make any real difference; in the presence of either condition early attention will secure the best results. Few conditions that the physician sees are more distressing than trachoma.

Just a word in regard to an idea that I saw in some medical journal which I have since used to advantage.

Recently I had a case from Butler County in a woman who had not been able to see light for weeks and her eyes were in a terrible condition. I did a canthoplasty and, instead of scraping the lids I rubbed them with common salt. I have done this in a number of instances and it is wonderful how much more quickly it gets rid of the granulation tissue. In this case the granulation disappeared promptly and I am going to fit the patient with glasses in the next few weeks.

**E. C. Rice**, Rollo, Mo.: I would like to emphasize the fact that trachoma is a public health problem because it produces blindness as a result of its effect upon the cornea. We do not like to use the word "cure" in connection with trachoma but, as in tuberculosis, the disease may become arrested without treatment of any kind, and with very little damage to the cornea. Extensive damage to the cornea occurs only in a small minority of cases. That is one of the queer things about trachoma; why in some cases the cornea seems to lack resisting power while in others it will show a high degree of resistance. Trachoma is malignant for some corneas and not for others.

The etiology of trachoma is unknown. A great deal of work has been done along this line in the past few years at several places, notably at Washington University. Recently, in the American Journal of Ophthalmology, there was reported a number of instances of experimental transmission of the disease from one individual to another, by first swabbing an infected eye and then using the same swab in a normal conjunctiva. The incubation period was apparently about six days and the disease steadily progressed for about six months during which time considerable damage to the cornea developed. I think it has been proved, therefore, that the disease is communicable, which has been a matter of doubt among those who have studied the disease for a long time.

**Robert Sory**, (in closing): I am glad that Dr. Marks in his discussion paid tribute to the late Dr. J. A. Stucky of Lexington. I believe we all appreciate the fact that Dr. Stucky was a pioneer in this work, and he remained interested in Trachoma as long as he lived. In the summer while on his vacation he used to go into the mountain districts of Eastern Kentucky and hold clinics, and his work in interesting others in the subject is largely responsible for the progress that has been made along this line.

Dr. Pfingst emphasized the importance of post-operative treatment of trachoma. I agree with him that this is equally as important as the operation itself. It is a delusion and a snare to think that these patients can be operated upon and then given a little bottle of silvol and sent home, and good results obtained. Every case ought to have careful post-operative attention over an average period of about five weeks. That is a minimum time in which we can get them into a condition where we can call the disease arrested.

As to Dr. Griffith's question concerning the frequency of silver applications we do not begin the application of anything to the lids until about a week after the operation. For one week following the operation we irrigate the eyes four times a day with boric and saline solution and instill twenty per cent solution of silvol. Then we begin the application of a two per cent silver nitrate solution once a day.

What is and what is not trachoma is a much debated question. I have always advocated conservative diagnosis of trachoma. Dr. Williams stated that ten years ago in New York City they were calling all cases of granulated lids trachoma. It all depends then on what we call a granulated lid. I do not believe that every lid with lumps on it can be called granular. Folliculosis does not present what I would call a granular lid, and I do not believe in calling it trachoma and operating upon it. I may lean backwards a little too far in that particular. Folliculosis is a distinct entity and so is trachoma, and they should not be handled in the same manner. In folliculosis the lids present a soft lymphoid tissue which disappears spontaneously, and perhaps more quickly than if we try to do something for it, particularly an operation. I am sure I have seen cases of folliculosis in which grattage was followed by a post-operative conjunctivitis, and I have always felt that these patients would probably have been better off if left alone; that nature would have corrected the trouble in a comparatively short time if given a chance. Therefore, I think we should be very careful in our diagnosis and endeavor to make a differential diagnosis between folliculosis and trachoma.

Folliculosis is very common among school children everywhere, and when I see a report of large numbers of cases of trachoma found among school children there is always a large question mark in my mind as to the diagnosis. Our experience has been that we do not find much trachoma in the schools. When a school child has trachoma it is not long until the child is unable to attend school. We find the majority of our cases in dark rooms at home.

There are some rules of differentiation between folliculosis and trachoma that will aid materially in the diagnosis. In the first place there is a difference in the follicles. In folliculosis the follicles are superimposed upon the conjunctiva, and in trachoma they are imbedded beneath the conjunctiva. Carrying that same point one step further gives the best point of all in the differential diagnosis. In folliculosis when you evert the lid you can trace the small conjunctival blood vessels down over the edge of the tarsus, whereas in trachoma you are not able to do this because the follicles are imbedded beneath the conjunctiva and the small conjunctival blood vessels are obliterated. Furthermore, trachoma presents a very characteristic color. In folliculosis the follicles are large, soft and pale, whereas in trachoma they are a purplish red or raspberry color.

Up to this point our diagnosis has been made from a study of the lids. One of our safest and most reliable diagnostic measures is in a study of the cornea, which is equally as important if not more so than a study of the lids. We formerly thought that pannus was a late complication of trachoma, whereas with magnification and illumination by use of the Slit Lamp we now know that it is a much earlier complication than formerly thought, probably occurring in a majority of cases within the first three months. There is really only one situation which should confuse us in the differential diagnosis between folliculosis and trachoma, and even laboratory methods cannot help us here, that is when you have a conjunctivitis superimposed upon a folliculosis. In such a case no one can make a diagnosis and the only thing to do is to keep the patient under observation and treatment. If it is folliculosis it will clear up in a comparatively short time, and if it is trachoma it will not.

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# ACUTE LARYNGO-TRACHEO-BRONCHITIS IN CHILDREN WITH CASE REPORTS*

S. B. Marks, M. D.

Lexington.

Recognizing the not infrequent occurrence of this complex and the importance of its early recognition and treatment, the writer presents a brief review of the literature and reports two cases exemplifying some of its vagaries.

Among the most comprehensive articles reviewed, sixteen in number, are those of Baum, who first applied the name laryngotracheobronchitis, these of Gittins with an excellent bibliography and one of Adler.

Of 240 cases tabulated very few of whom were over ten years of age, 55 died. Thenebe reporting 51 cases, 23 of whom recovered with expectant treatment, 21 of whom were intubated with 5 deaths, 5 tracheotomies done with 4 deaths, 4 had both with 1 death, stresses the seriousness of the conditions in the very young, 5 of his 7 deaths occurring in those under 2 years of age. He also stresses, as do the others, the importance of early relief of dyspnea even though the distress be slight or of moderate intensity; 6 were relieved on first day of dyspnea with 1 death, 18 the second day with 2 deaths and 18 the third day with 2 deaths and 9 the fourth day with 2 deaths. One case existed only 16 hours from its inception to death. Gittins with 24 cases did 15 tracheotomies with 8 deaths, in spite of expert hospital care. Baum in 24 cases had 10 deaths, 8 with tracheotomies, 1 with intubation and 1 with both. It is agreed by all that this disease is often a manifestation of an acute upper respiratory infection of greater or less severity, the majority showing such an infection for about one week. Not infrequently it has followed an attack of one of the acute exanthemata, especially measles, foreign bodies especially those of a protein character and undue exposure to certain irritants. Both Sneller and Thenebe suggest that some few cases are allergic, other than aspirated protein foreign bodies. The writer saw a 2 year old child with mild dyspnea and marked congestive changes in his larynx, who four hours previously had choked upon a small piece of celery without aspiration. It was his first celery and so far as I know he has not tried it since.

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*Read before the State Ear and Ear Society at Paducah, Ky., May 15, 1933.

The predominating bacteria found have in most instances been some type of streptococcus mixed with various staphylococci with occasionally pneumococci and rarely the influenza baccillus or some other single organism. Bradford and Leahy report careful cultural studies in 28 cases treated by them which showed the streptococcus viridans predominating in 20 cases; though the hemolytic streptococcus ran as high as 40% in one case it usually occurred in about 5%. They then studied a group of well children and some with simple upper respiratory infections and found the same predominance of the streptococcus viridans and are unable to make definite conclusions as to a specific organism.

Many autopsies have been reported showing uniformly a subglottic obstruction often expending into the trachea and large bronchi with much secretion and with the small bronchi filled with thick tenacious mucus. The epiglottis and folds are often found swollen, but rarely markedly edematous. Bradford and Leahy report edema injection and granulations of tracheal and laryngeal membranes with definite lobular pneumonia in all their autopsies. Thenebe reports one case with atalecstasis of a large portion of the left lung and a smaller area of the right. Gittins reports a well defined gray membrane in one incidence.

The usual symptoms are those of an upper respiratory infection of a few days to a week with the development of laryngeal dyspnea, which often occurs suddenly and with little warning. Bradford and Leahy state that 21 cases were sudden and one-half of them developed dyspnea at night. The dyspnea or stridor is of an inspiratory type in most cases and shows an early supra and infrasternal retraction, accompanied by pallor, restlessness and distress with rapid heart action and rapid breathing. Extreme hoarseness is rare since the obstruction is subglottic, but slight or moderate hoarseness is not uncommon and may be an early symptom. Cough when present is dry because the secretion is blocked in by the laryngeal obstruction and can not be expelled. Bronchopneumonia may be already present when obstruction takes place. Lyman Richards says the condition is not always preceded by a cold and he thinks the infection often attacks the larynx and trachea directly. Theisen also makes this statement. All authors warn against waiting too long before doing an intubation or tracheotomy and Gittins particularly warns against taking the signs of almost complete laryngeal obstruction for cardiac failure. Cyanosis is a later or terminal sign of obstruction while retraction and pallor occur as early danger signals.

Examination of the larynx by mirror or direct laryngoscope shows a congested epiglottis, often quite swollen upon the laryngeal side, sometimes with edema, with a red or dusky swelling of the aryteno-epiglottic folds and of the sub glottic mucous membrane. Rarely is a membrane found and when it is present it is due to the staphylococcus. The cords rarely show changes other than a moderate congestion, which is not constant. Many mild cases recover with carefully conducted expectant treatment with the use of steam tents, nasal instillations and where marked edema is present in the epiglottis and folds by the judicious use of stab incisions. All advise the use of antidiphtheretic serum and feel that even in the absence of diphtheria the serum may have some value as a foreign protein, although serum reaction must be carefully guarded against. Direct local applications should not be used as they tend to make matters worse and sedatives must be avoided for self evident reasons.

It can probably be safely said that the majority of these cases are fortunately mild, some very mild and recover with expectant treatment or no treatment directed to larynx nor the tracheobronchial system; but those with signs of laryngeal obstruction demand rather heroic measures. Early tracheotomy, low of course, is the method of choice with virtually all, though some advise intubation as a preliminary measure. The after care with frequent cleaning of cannula and suction to keep the trachea and larger bronchi clean are imperative. Baum believes that the intubation tube fulfills the requirement better than the cannula as there has been in his hands less drying and crusting in the trachea. Fluids must of course be pushed and supplied by hyperdermoclysis if necessary and other restorative measures resorted to as the occasion arises. Gittins uses two to four minims of 1 to 10,000 adrenalin and small amount of normal saline instilled into the cannula at frequent intervals, which render the secretion less tenacious and helps in its removal. The writer has found the instillation of 10 drops of 5% neosilvol every three to six hours most valuable not only in decreasing the amount of secretion but in helping its removal. Lyman Richards uses the Mosher life saver straightened and introduced by direct laryngoscopy preliminary to tracheotomy as it both relieves the dyspnea and renders the operation much easier.

### REPORT OF PERSONAL CASES

Case 1. B. B., white, female, age three years, was first seen by the writer December 11th, 1930 with a history of having been sick for five days with a moderate rise in temperature, increasing hoarseness, cough and choking all of which symptoms had become much worse in the previous twenty-four hours. Her attending physician stated that he thought she had diphtheria when he saw her three days previously and had given her 60.000 units of antidiphtheritic serum, but that she had shown no improvement. Upon examination she presented the picture of well marked laryngeal obstruction and was quite exhausted, an intubation was done immediately and considerable thick muco-pus was expelled with relief of the obstruction. No examination of the larynx was made, but the epiglottis and folds presented a swollen velvety feel to the finger. No membrane was in the pharynx nor upon the tonsils. So much secretion was expelled, which upon two cultures showed many streptococci and staphylococci, that no attempt was made to remove the tube for three days at which time it had to be replaced in a few minutes. The tube was removed and cleaned with increasing frequency, the last forty-eight hours about every eight hours, for nine days longer. Following the tracheotomy, done with the intubation tube in place under very light ether anesthesia, because of the extreme intractability of the patient, she did fairly well with frequent cleanings of the cannula and of the trachea with rubber tube suction for five days, when the secretion became so thick and tenacious that ten drops of 5% neo-silvol was ordered instilled into the cannula every three hours, which procedure was so beneficial that the time was extended to every six hours after the second instillation. Recovery was steady and uneventful in spite of the fact that she had chicken pox and that three pea sized pedunculated masses had to be removed from the aryteno-epiglottic folds before decannulation could be accomplished. At no time was the temperature above 102.6 and at no time were physical signs of pneumonia found.

Case 2. J. N., white, female, age 7 years. Was first seen by an otolaryngologist on February 12, 1933 at 8 p. m. because of bilateral earache of two hours duration. At this time she said her throat was sore but nothing was found, though her larynx was not examined. Prior to this she had made no complaint and had played out all afternoon. She was given very light chloroform anesthesia by one of our most careful and competent pediatricians and a double myringotomy done. About two hours later both physicians were recalled because of difficult breathing. At this time the epiglottis was markedly swollen with some edema, as were the aryteno-epiglottis folds. The writer was then called to consider the desirability of an intubation. Upon examination the patient was anxious, breathing regularly with no hoarseness and no stridor except when being examined or when she coughed or talked, very slight suprasternal retraction being evident at these times. The submaxillary lymphatic glands were tender and slightly swollen. The epiglottis was swollen very markedly with some edema and of a red color as were the aryteno-epiglottic folds, but both cords were normal and easily seen. It was decided to puncture the epiglottis and see if she got better, which was attempted by the writer with direct laryngoscopy though the knife used was only long enough to reach the tip. Like a good plummer he decided to go to his office and get a longer knife. When he returned in almost fifteen minutes he found the child to all intents and purposes dead. As stated by the other physicians, she had suddenly developed marked stridor and upon a forced inspiration had failed to breathe out, had collapsed and could not be made to breathe; so she had been for at least four minutes. The writer was fortunate enough to quickly introduce a Mosher life saver which was followed by an outrush of air through the tube and she was soon resuscitated. Thirty minutes later a tracheotomy was done with the life saver in place under infiltration anesthesia and a No. 3 tube put in. Examination with the mirror after the tracheotomy showed the cords obscured by the aryteno-epiglottic folds. The temperature an hour later was 103, but was normal in four days and the tube was removed on the fifth day after being changed to No. 2 on the fourth day and corked. During this period the swollen tissues gradually returned to normal and but for an easy expulsion of a moderate amount of muco-pus through the tube, which upon several culturings showed streptococci and staphylococci, recovery was uneventful. She was given 20,000 units of antitoxin the first night and 1+1/2cc of Omadin for three daily doses.

I report this case and have given this paper to emphasize the place of the Mosher life saver in the kit bag of every man doing work among children, whether a specialist or not and to emphasize the case of its introduction and the assistance and confidence it lends to tracheotomy. Had Dr.

Mosher done nothing else he would have done enough in the devising of his life saver.

### SUMMARY

1. An incomplete review of the recent literature upon acute laryngotracheobronchitis is presented with bibliography.

2. The importance of early relief of laryngeal obstruction preferably by tracheotomy and the important place of the Mosher life saver in the accomplishment of this objective are stressed.

3. The report of two cases of the condition under discussion differing widely in their characteristics.

4. The suggestion that probably many cases of acute laryngotracheobronchitis of probable streptococcic origin are being diagnosed and treated as diphtheria.

### DISCUSSION

**Gaylord C. Hall,** Louisville: Dr. Marks' paper is on a subject of tremendous importance. Frankly, I am afraid of these cases and while some of them, of moderate severity, seem to do well under expectant treatment, I do not believe we are justified in giving these patients a favorable prognosis. A policy of watchful waiting would not be wise in most instances.

In the cases I have seen I have not given diphtheritic antitoxin. In two cases I have used anti-streptococcic serum with recovery in both instances. Just how much influence the administration of the serum had, I am unable to say because other measures were also applied.

One point that should be stressed is this: Given an acute respiratory infection in a child, with dyspnea and a rapid heart, we must act and act promptly. In every case in which there is marked stridor, the immediate use of the Mosher life-saving tube is imperative, even while the patient is being transported to the hospital. My own practice is to do a tracheotomy over a bronchoscope. Just as soon as the child. with the Mosher tube in place, is sent to the hospital I insert a bronchoscope and remove all the mucus I can. That relieves the emergency symptoms and then tracheotomy can be proceeded with in a more leisurely manner. It converts a rather ticklish emergency operation into one of comparative ease. Doing a tracheotomy over an inserted bronchoscope is just like doing a urethrotomy with a guide. It is very much easier than trying to find the trachea through a column of blood, even though you follow the dictum laid down by Dr. Jackson, that "safety lies in the median line." You will find that not only is it easier on the child but it will often save you considerable mental distress.

I was interested in reading Dr. Jackson's report on this subject, advocating the administration of enormous doses of soda in these cases, presumably for the purpose of liquefying the secretion and rendering it less tenacious. I have never given silver salts through the tube; I see no reason why this procedure should have any decided effect. The only thing I have given through the tube in cases in which there was considerable distress is adrenalin in oil, with apparently good results.

When these patients die, it is the result either of failure of the heart to take care of the increased burden upon it, or to extension of the infection downward, practically drowning the child.

This is a subject of tremendous importance, and the particular phase to be stressed is the necessity of doing something for these patients right away and not waiting twenty-four to forty-eight hours before attempting to relieve them.

**S. B. Marks,** (in closing): I wish to thank Dr. Hall for his full discussion of the paper.

It is all very well to talk about meeting these emergencies in the hospital, but in my experience most of these cases occur in the home and the emergency has to be met there, and such measures as introducing a bronchoscope are out of the question.

I have had a Mosher tube for ten years—ever since Dr. Mosher first published his article—but this is the first time I have ever had occasion to use it. It is flexible and, curiously enough, it fits either an adult or a child. It can be introduced with practically no discomfort to the patient.

On looking up autopsy reports, I was surprised that there were not more cases of atelectasis found than there are. The only instance of atelectasis reported was in an article by Thenebe published during the past year in the Archives of Oto-Laryngology. However, I believe as time goes on and the importance of atelectasis in conjunction with these cases comes to be more fully appreciated, a great many more instances of atelectasis will be found at autopsy, either in conjunction with broncho-pneumonia or without it.

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**Rapid Typing of Pneumococci.**—A rapid typing for pneumococci that would avoid the present clinical delay is currently reported by Drs. R. H. Sia and S. F. Chung of the Peiping Union Medical College. The Sia technic consists in plating the clinical material on type-specific antiserum-agar, that is, on dextrose-agar plus from 1 to 5 per cent of type-specific anti-pneumococcus rabbit serum. The homologous type pneumococcus colonies growing in the depths of this medium show annular opacities or local precipitin reactions surrounding each colony. The development of these annular opacities is allegedly strictly type specific.

# MY OBSERVATION OF THE LYNCH ETHMO-FRONTAL OPERATION*

A. L. Bass, M. D.
Louisville.

One of my chief reasons for choosing this title when asked to present a paper, was in memory of Dr. Lynch. A man well known, respected and admired. It was in the Spring a few weeks before his fatal accident. I had the pleasure of seeing him do one of his Ethmo-Frontal operations. Since then I have done ten and the results are so satisfactory I cannot help but voice my recommendation of the procedure and as Dr. Lynch said, "After all other methods have failed try this." What few external operations I had done on the frontal sinus previous to adopting the Lynch method had some one or more of the many complications; such as closure of the naso-frontal duct and osteomyelitis. One case had erysipelas. The deformity which goes along with the removal of the anterior wall of the frontal sinus is not a good advertisement for one's craftsmanship. While there were no fatalities in my few cases, the after treatment extends for some time and the few complications gave me some anxious moments. With the Lynch method the operation is complete; there is no deformity, the cosmetic defects are negligible, and as for the after treatment, Dr. Lynch says, "Leave them alone."

The attitude of the public and many of the profession towards chronic sinus disease is erroneous. Just recently one of my good surgical friends said, "Can you do much for chronic sinus disease?" They have formed their opinions and come to these conclusions after hearing or experiencing disappointments in the management of chronic sinus disease. This state of affairs is a challenge to our specialty.

The relation of chronic sinusitis to the general manifestations of chronic infections else where in the body, such as bronchitis, bronchiectasis, asthma, arthritis are demanding more attention from the general practitioner in order to bring about the desired results. Only recently we had a patient with arthritis referred from a general practitioner. He wanted her sinuses investigated as he could find no focus of infection. Her sinuses transilluminated negative, antra irrigated clear, x-rayed showed involvement of both antra; and at operation antral mucosa was found to be markedly diseased and a culture from the macerated diseased tissue showed pneumococcus. Many special physicians consider the abatement of local symptoms and relief of patient as constituting a clinical cure. Jansen stated thirty years ago that, "A cure does not at all coincide with removal of symptoms and complaints which frequently disappear with a few irrigations. There are many cases in which irrigation through the maxillary ostium will show no pus for several days, while surgery will reveal pus pockets with thick granulation tissue." This observation applies to all the sinuses. Only recently we had a patient with uveitis, vision in right eye dropping to fingers at six inches. Search for all foci including urinalysis, teeth, tonsils, Wassermann, Von Pirquet and blood sugar were negative. Transillumination of sinuses and irrigation of right antrum on two occasions were negative. X-ray plate showed decided involvement of right antrum as you will notice in the picture. At operation marked pathology was found and soon after operation his eye began to clear up. Two and a half months after operation his vision was O. D. 20/20 and he could read type One.

Chronic Sinus disease nearly always means involvement of more than one sinus. Only recently I had a patient with diseased sphenoid solely. I did not think such a condition existed. I will show that plate. The ideal cure is the restoration of normal mucosa and function. This is hardly to be expected from a chronic infectious process; but it can be approximated. The middle turbinates are not replaced; the ethmoid cells, and the frontal sinus become obliterated. The diseased mucosa lining the sphenoid can be removed in most instances and the antra are relined within three to six months with normal mucosa according to microscopic findings.

Because of the anatomic variations which are many, of pathological conditions which will not yield to drainage and ventilation and of the mechanical impossibilities of exenteration and evisceration of the ethmoid labyrinth by the intranasal route, there will always be a certain number or per cent who must submit to the external approach if they expect relief. A great many cases subacute in character, will respond to intranasal drainage and ventilation. These are not the type of cases under discussion in this paper. On the contrary it is the cases that have resisted treatment, local and general, diet, climate and intranasal surgery no matter by what method or in whose hands, they continue to have pain and discharge from failure to remove the focus. It is then that the external approach is indicated and advocated; where it can be done under direct vision and every bit of pathological tissue can be removed. It is needless to say this cannot be done by any intranasal method. Pain is the chief symptom which makes these patients submit to the external approach.

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*Read before Eye, Ear, Nose and Throat Section, Kentucky State Medical Association, Paducah, May 15, 1933.

One patient for a year and a half had been unable to sleep later than 1:30 or 2:00 o'clock a. m. on account of pain. After a Caldwell-Luc followed within two weeks with the external operation, he has been able to sleep through the night, has no pain, gained twenty-five pounds and says, "I feel fine, like a different person." Prior to operation I was irrigating his frontal from one to three times per week. Since the operation I see very little of him professionally.

Jansen in 1894 described the cardinal principles and technic of this operation. Ritter twelve years later in an article, described practically the same technic. Arnold Knapp was the first in this country to advocate this procedure in an article in 1899. The operation was not accepted with much enthusiasm until it was brought to the front again by Dr. Lynch in 1922. He has done more and aroused more interest in this method of management than any one. In 1929 he reported one hundred and forty-eight (148) cases with two deaths. Cullum, 1929, reports twelve cases with no complications. Smith in an article this year in the American Medical Association Journal reports in excess of five hundred (500) cases with five deaths.

The technic of the operation: If it is to be done under general anesthetic, a postnasal plug is used on the side of operation. The operative field is painted with tincture of metaphen. A small cross cut is made in skin at upper and inner angle of the incision for proper closure at end of operation. The incision at first extends about one and one-quarter inches from the eyebrow downward about one-quarter of an inch mesial to inner canthus parallel with orbital rim. The vessels are clamped and ligated. The periosteum is elevated throughout the operative procedure from the lower half of incision only. The periosteum is elevated well back into the orbit and along the floor with a submucous elevator, save in the area of the lacrimal sac, where a sharp gauge is necessary to dislocate its ligamentous attachment. Care must be taken not to break the orbital periosteum as this is liable to cause a muscle imbalance. The orbital contents are retracted laterally with the Sewell retractor. The mesial orbital wall is perforated through the lacrimal fossa. With a Hajek punch the opening is enlarged. The nasal process of the superior maxilla, the lower lateral edge of the nasal bone and the lamina papyracea are removed. This renders it easy to eviscerate the entire ethmoid labyrinth; and in many instances you can readily appreciate why you cannot reach all the ethmoid cells intranasally. The area along the nasal process and cribriform plate are curetted lightly and any vestage of diseased tissue which does not come away easily is swabbed with five per cent picric acid in thirty-five per cent acetone solution; then in a short while it can be removed with a gauze swab. Next the frontal is entered through the nasal frontal duct and the sinus is sounded with probe to see the extent of its external margin, the incision along the eyebrow is extended and the orbital periosteum is elevated accordingly. The entire orbital plate of the frontal sinus is removed. The diseased mucous membrane is removed with Coakley Curettes. Dr. Lynch reports in his entire experience he did not meet with a frontal sinus he could not curette the entire cavity. Again light curettage is done along the nasal process of the frontal bone and if the diseased tissue does not come away readily the picric acid acetone solution is used. The frontal sinus area is packed with 3.5 per cent iodine solution for a few minutes or while the sphenoid sinus is drained, if it has not received attention previously. If the mucosa of the sphenoid does not come away readily, the picric acid solution is used. A half inch soft rubber tube is placed in the wound and extended to the tip of the nose. Five per cent iodoform gauze is lightly packed in the sphenoid and posterior ethmoid area, which is removed in twenty-four to thirty-six hours. The lower edge of periosteum is sutured to the subcutaneous tissue above with about three to four interrupted double 00 catgut sutures. The skin edges are approximated with interrupted silk or linen. A light pressure bandage is applied for twenty-four hours. Rubber tube is removed about the seventh to tenth day. Sutures are removed from the fifth to seventh day. Little or no after treatment is required.

## DISCUSSION

**Gaylord C. Hall**, Louisville: I do not believe I am entitled to speak with the voice of authority on this subject because my experience with the operation has been entirely too limited to warrant any hard and fast conclusions. However, in the few cases in which I have used the operation the results have been good and there have been remarkably few complications.

The first question that presents itself is, what cases are suited to the operation, if we grant that any of them are. I think there are some cases, though perhaps few in number, in which the operation is indicated, but I would take issue with the view expressed by some of the men quoted by Dr. Williams, in his discussion, that it is an operation for an acute condition. Far from it. I believe all of us will agree that, in the presence of an acute condition involving the orbital contents or threatening the intracranial structures, the indications are to do just as little as possible for the purpose of relieving pressure symptoms, and to reserve radical procedure until such time as the acute symptoms have subsided and the condition has become more or less chronic. My own view would be that the Lynch operation is strictly a procedure for chronic cases in which previous treatment or intranasal surgery has failed to relieve the symptoms.

I agree with Dr. Lynch and Dr. Skillern that continued crusting and purulent discharge following a sinus operation is not usually due to the operation itself, but rather to the incompleteness of the operation, leaving certain cells unopened, which continue to discharge infectious material with the crusting incident thereto.

Just one point in regard to the operation itself. I believe those of you who have done both the old Killian and the Lynch operations, will agree with me that the latter is far superior to the Killian operation, not only because the Lynch operation results in less external deformity but also in respect to the after-treatment, and the ease of handling the incision and making reapposition of the skin, all of which are important factors. Likewise, the fact that you do not have to elevate the periosteum over the anterior portion of the frontal bone, which is supposed to prevent the development of osteomyelitis. I personally prefer to open the bone with a burr and then enlarge the opening with Citelli forceps. The removal of the membrane is facilitated by inserting the tip of a submucous elevator between the bone and the mucous membrane, and where there is difficulty in getting it away, then use soda and acetone solution.

I recall that, in the discussion of Dr. Cullom's paper, the question was raised as to leaving the middle turbinal, and the view was expressed by some that it is inadvisable to leave the middle turbinal. Personally, I see no reason why it should not be taken out. Most of these individuals have narrow noses to begin with—that is one of the etiological factors in initiating the trouble and it is kept up by reason of inadequate drainage due to the narrow nose. Therefore, I see no objection to taking out the middle turbinal.

As far as my experience with the operation goes, the results obtained have been similar to those cited by Dr. Bass. However, I am aware that there is a rather violent difference of opinion between advocates and opponents of this radical surgical procedure, which recalls to my mind an ancedote relating to an eminent member of the medical profession in Louisville, now deceased, who was in the habit of getting a pretty good-sized fee for his services. On one occasion a patient complained of the amount charged him, saying, "I do not see why you should get three dollars for a visit, when Dr. Blank will come for two dollars." "Well," replied the eminent doctor, "Dr. Blank is a pretty good man, and he probably knows just what he is worth."

So, with these men who are persistently unfortunate in the outcome of their cases, I am wondering whether it is because they are not as thorough in their work as they should be, or whether there is something that they fail to grasp in their conception of the operation which makes their results consistently bad while others get very good results from the same procedure.

**J. D. Williams,** Ashland: Many years in this work have made me very conservative in respect to the surgery of the nasal accessory sinuses. I am encouraged in this stand by the attitude of such men as Skillern, Shambaugh, Mosher, Lewis, Sewall, Goldsmith and many others of like caliber, some of whom violently oppose, and others damn with faint praise radical surgery. Mosher says, "Theoretically the ethmoid operation is easy. In practice, however, it has proved to be one of the easiest operations with which to kill a patient." And on occasion he has inferentially condemned radicalism in advising the mere "uncapping" of the ethmoids. He has said, "once a sinus case always a sinus case," and a later statement to the effect that mild cases treated become continuous and by surgical interference become permanent. Skillern: "For who indeed has ever contemplated an ethmoid some months after complete operation." And Goldsmith: "It is better to bear the ills we have than to fly to those we know not of." Shambaugh: "Ventilation by resection of the wedged turbinate, removal of the hyperplastic floor, capable of giving as satisfactory results as radical exenteration." He finds frequent occasion editorially to display his conservatism and giving his criticisms in thinly veiled sarcasm not rarely.

Lillie, in 158 consecutive radical frontal operations gives a 30 percentage of complications, some quite serious. Mitchell was astounded at the incidence of persistent headache following complete ethmoid exenterations in the Hajek Clinic. Lewis: "Following long nonoperative and operative treatments, find themselves (ethmoid cases) not only no better but definitely worse," and points to the trend everywhere against radicalism, saying that "no great amount of clinical experience is required to realize that, for some reason or other, patients who have been subjected to extensive surgery of the upper respiratory tract are not better but definitely worse;" condemns "better and bigger drainage openings." Among these are "radical exenteration of mucosa and accessory nasal cells." Fenton, conceding the justice of radicalism in certain conditions, namely cranial and orbital suppurations, mentions "the conservative tendency" in contrast with the radical surgery of ten years ago." Lynch, himself, justifies such a serious procedure in that "it is almost always emergency in character," involving first "extension of inflammatory process to brain or orbit"; and second, "as a last resort in cases that have resisted all methods of less violent approach." Tilley: "even the results may not survive searching criticism": and "if operated upon to bring to the case greater anatomical knowledge, caution and manipulative skill than required in any other form of nasal surgery.

Our distinguished guest, Dr. Dean, speaking of Miller's statistics covering 834 cases, 49 per cent of whom had been operated upon without benefit, stresses the importance of allergens in the treatment and cites a case in which operation had been advised because of macroscopic pus. The discharge of so-called pus revealed not a single polynuclear cell, almost all of them being eosinophils. Milk was withheld with perfect nasal control. He insists that diet must be considered, stressing particularly the need for fats. Epigrammatically does he pronounce that "the most important fundamental recent change is the conversion of the specialist in Otolaryngology into an internist with otolaryngologic leanings."

One should bear in mind that there is exactly the required amount of nasal mucous membrane provided by Nature that the inspired air may be moistened, warmed and filtered. By reason of the elevations and depressions over and upon the terminals, labyrinth, etc., these membranes cover many times greater surface than would obtain if the walls were straightly perpendicular; hence the defeat of Nature in removing any part of these that can possibly be saved. I am convinced that any individual can but suffer greater or less discomfort permanently who has had done this operation or one similar to it in its radicalism. This conclusion I have come to in a long and extensive experience in sinus observation.

Dr. Bass is to be congratulated upon the outcome of these cases where the skill of an artist must needs have been utilized.

**Walter Dean**, Louisville: The radical frontal sinus operation under the best circumstances is not entirely free from danger. Acute suppurative and exacerbated cases should always be operated by the two-stage method. Trephinization of the frontal establishes immediate free drainage with minimum trauma. After the fire has burned down, it may be found that one or more sinus walls are diseased, must be removed and permanent drainage provided. The individual anatomico-pathological peculiarities of each case determine the type operation indicated in that case. A knowledge of all technics from Kuhns to Lynch is necessary. The Society is obliged to Dr. Bass for this presentation of Dr. Lynch's technic.

**A. L. Bass**, (in closing): I knew I would get a kick out of Dr. Williams' discussion, because he was present when Dr. Lynch demonstrated the operation and it was certainly a drastic looking procedure. His comment as we left the operating room was: "If any one ever did that to me and I lived through it, I would want to kill him." I have found, however, in the cases in which I have done the operation, that the patients have been so grateful for the relief afforded that they had no objections to offer.

As Dr. Hall has pointed out, the operation is not indicated in the presence of an acute condition. In such cases the thing to do is to relieve the pressure and get out as quickly as possible and after the acute symptoms have subsided, then go back and do radical surgery.

As to removal of the middle turbinal, in two or three cases I have removed the posterior ethmoids and left the middle turbinal, but in most instances I prefer to take it out.

In some instances these patients have developed an intense itching of the brow, lasting in one case as long as six months. I tried various methods to relieve this itching without success and finally I decided to try x-ray and after a few applications, the itching disappeared.

## TWO UNUSUAL CASES*

D. M. Griffith, M. D.

Owensboro.

The object of this writing is to present two cases of convulsions, the possible cause of which is so out of the ordinary, as to be of interest to this society.

Case I. A. R., a girl aged eight years, a patient of Dr. M. L. Smith, Maeco, gave a history of pain in the head January 14, 1932, prior to which she had good health. Dr. Smith was called and gave treatment to relieve distress. On January 16, 1932, she began having convulsions. Dr. F. M. Sherman, Owensboro, was called and on suspecting a mastoiditis, she was brought to hospital, but x-ray proved negative and patient returned home. Convulsions continued for sixty hours during which time she had thirty convulsions. Dr. Smith called me for head examination. That examination revealed no cause except diseased right antrum of Highmore. It was apparent that patient was suffering great pain and loss of vitality, and would be in danger if convulsions continued.

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*Read before Eye, Ear, Nose and Throat Section, Kentucky State Medical Association, Paducah, May 5, 1933.

The case was diagnosed from a clinical standpoint as it was not wise to move patient again to hospital to secure x-ray. The determining points were: Transillumination positive, tenderness on pressure, swollen turbinates right nostril and slight discharge of antrum into nose. Temperature 102.

The critical condition of patient, great anxiety of family and the absence of any assignable cause made us decide to remove the only detected pathology, in the hope of possibly arresting the convulsions. The antrum was drained, without an anesthetic and the patient did not have another convulsion.

Case II. J. L., a boy, aged six years, was sent by Dr. P. T. Willis, Beaver Dam, to Dr. E. Dargan Smith, City Hospital, Owensboro, October 22, 1932. Previous history: Scarlet fever several weeks before but had recovered. Flu, October 20, 1932. Restless and semiconscious eight hours before coming to hospital. Dr. Smith not finding any cause in general system called me for head examination. Patient was restless and complaining of great pain in head. Muscles of neck rigid, but head not held back in typical opisthotonos. There was not slightest change in eardrums, landmarks in no wise altered. No sagging posterior superior wall. Temperature ax. 99, pulse 30, respiration 26, pupils small but reacted. There was tenderness on deep pressure over one antrum and over other tip. Patient was poorly nourished and considerably dehydrated. Spinal puncture slightly cloudy and many blood cells. I diagnosed a double atypical mastoiditis which x-ray confirmed. I did a double mastoidectomy on the morning of October 23, 1932. Mastoid areas were small and pus was found in left antrum and right tip as shown by x-ray. The internal table was intact and not invaded.

Case progressed nicely until night of 26th when patient complained of headache and very restless through night which condition continued until 4:00 a. m. of 27th, when patient had a convulsion. There was a convulsion every two hours until 10:00 a. m. of 27th when interval shortened to one hour and at times shorter intervals. Child was stuporous. We were at a loss to account for convulsion. I did not believe they were from mastoid extention. Even though there was no discharge from nose or post nastal space, I remembered case number one and began careful examination of each antrum of Highmore and found both diseased.

Owing to exhausted and stuporous condition of patient I was able to drain antrums without an anesthetic on October 28th, 1932. Following that procedure the patient never had another convulsion, rested well with pain in head relieved and progressed to a complete recovery. This case clearly proves, the dictum, that having located one focus and relieved it continue search for all foci and relieve them.

I can understand how the frontals and ethmoids could be a cause of convulsions but has the antrum Highmore been found a cause? Because of prompt relief it is my opinion that if convulsions were from antrum they were caused by pain and were not toxic.

These cases are reported because of the unusual relation of cause and effect. Prompt arrest of convulsions, in these cases suggest that there is even in this ultra scientific day, possible good in experimental work on clinical cases.

I realize that these case reports are not complete in every detail and that they do not prove, beyond a doubt, the absence of possible other causes, still, the prompt and permanent relief from antrum surgery in these two cases, must direct our attention to that cavity when other cause is not found in a case of convulsions.

## DISCUSSION

**H. G. Reynolds,** Paducah: Dr. Griffith has reported to us, two very interesting cases and I am sure the Society will benefit by the discussion, if for no other reason than to stimulate our observation and make us more alert in searching for causes and effects.

Understand that he was not present at the first examination and x-ray of the mastoid and as that is not a subject for discussion, we shall only take into consideration the cause of the convulsions from the standpoint of the maxillary sinuses. Personally, I have never had such an experience as he has reported.

Of course children with high temperatures, reflex irritations, etc., are subject to convulsions. If you consider the convulsions as due to a closed antrum, which would seem to be the case on account of the pain, this very likely could be attributed as a cause in both instances.

The second case reported is of even greater interest than the first. As in the presence of an atypical mastoid followed by a seemingly normal recovery with a sudden elevation of temperature, convulsions, etc., the average otologist would be inclined to consider an intracranial involvement and would institute laboratory procedures in determining its cause and in this I think he would be justified.

Of course in children, because of the delicate anatomical structures, meningeal symptoms, high temperatures and in general, a very sick individual, is a very familiar picture and not unusual in the presence of otherwise more or less trivial involvement.

I think that the contention that he makes that we should search for all foci in any individual case is well stated. In other words, it is the old story of teamwork, the otologist and the laboratory working in conjunction that brings out proper diagnosis and handling.

It would be interesting to know a little more about the mastoid in the second case than was reported by Dr. Griffith but as the outcome was satisfactory and the child made an uneventful recovery, at least in this case, all was attained that could be desired. I want to emphasize however, in closing, that in the reporting of such cases and their discussions, we are attaining the end desired in such meeting as this, in that we stimulate every member to a more alert and keen observation in the presence of such symptoms.

**Lee Wallace Dean**, St. Louis, Mo.: A number of years ago I was Director of the Ear, Nose, and Throat service in the Psychiatric Hospital at the University of Iowa. All cases of acute mania on requisition from the psychiatrist received a careful examination of the nose and throat. In many cases it was deemed advisable to eradicate any infection which might be present.

In several cases the acute mania disappeared following work on the nasal sinuses. I remember distinctly one patient with acute mania who had threatened to kill all the members of her family. This patient apparently made a complete recovery following the eradication of a sinus infection. That was about eight years ago. Last fall a follow-up record was made of this patient, and she seemed still to be quite well.

In the last year from England there was a report regarding the relationship between infections of the nasal sinuses and psychiatric conditions. The nose and throat were studied in over 1000 cases. Infection was eradicated. The results of the treatment were said to be very satisfactory. The report appeared in the Journal of Mental Science, volume 78: 459-662. This contribution was reviewed in the departmental conference. A number of cases were found in St. Louis which have been relieved of acute mania by work being done on the nasal sinuses.

Doctor Griffith's cases are not psychiatric cases. They might, however, be cases of meningitis secondary to infection about the nose and throat. Some four years ago there was a patient in the Children's Hospital that had all the symptoms of tuberculous meningitis. The child was unconscious. There was an increase of lymphocytes in the spinal fluid. Tuberculin tests were negative and the spinal fluid injected into guinea pigs failed to produce tuberculosis. This patient had acute infection of the nasal sinuses which disappeared under conservative treatment. With the disappearance of the nose and throat infection the youngster got well. Since then we have had a number of cases of apparent meningitis, all of them in children that were secondary to infections about the nose and throat. Most of the children suffer from convulsions and stupor. The last one that I saw came into the hospital about two months ago. It was a child of six who came into the hospital in a semi-stupor which looked to me like a case of typhoid and I suggested that typhoid be looked for. The child did not eat. It was necessary to feed it with a catheter. There was a temperature of 103 degrees F., with slight rigidity of the muscles of the neck. The first spinal puncture showed no increase in lymphocytes which is usually found in cases of meningitis secondary to infections of the nasal sinuses or the throat. A second spinal puncture revealed an increase in lymphocytes. He had an infection of the maxillary sinus. This was drained and he made a nice recovery. At one time there were 350 lymphocytes in his spinal fluid.

The cases of meningitis secondary to infections of the nose and throat present a picture very similar to that seen in meningitis secondary to mastoid involvement. So far in our cases there has been this difference; the increase in polymorphonuclear neutrophils usually seen in meningitis secondary to otitis infection, has not been found. This may be due to the fact that ear infections are nearer to the dura than a nose and throat infection. In brain abscesses, if the abscess is not close to the ventricle, after the capsule of the abscess becomes organized, the number of polymorphonuclear neutrophils in the spinal fluid decreases and the number of lymphocytes increases. This change in the cytology of the spinal fluid gives a better prognosis. The number of polymorphonuclear neutrophils in the spinal fluid may be dependent upon the ease with which the toxin gets into the spinal fluid.

To recapitulate, we are certain that infections of the nose and throat often present a picture of meningitis similar to that which results from middle ear involvement; the difference being that we get an increase of lymphocytes in the spinal fluid in the meningitis from the nose and throat instead of an increase of polymorphonuclear neutrophils as in mastoid trouble. We have seen in all, fourteen cases. One had a paralysis of the sixth nerve, another of both the sixth and eighth nerves. Most of the patients had a rigidity of the muscles of the back of the neck.

**D. M. Griffith,** (in closing): In talking with Dr. Barbour, of Louisville, some months ago, he said he had not seen convulsions resulting from infection in the antrum of Highmore alone. I can understand where the frontal and ethmoidal sinuses were involved infection could extend into the brain, producing convulsions, but I have not heard of infection in antrum Highmore alone causing convulsions. In the first case reported, the only pathology that could be detected was in the antrum of Highmore and upon instituting drainage of this infection, to our great surprise the convulsion ceased at once.

In the second case, I stated in the report that the boy had been semi-conscious for eight hours before coming to the hospital. I said "semi-conscious" to be conservative, but I have a letter from the boy's father in which he says that the boy was totally unconscious for that period. In this case also, following drainage of the antrums the convulsions ceased, the patient turned over and went to sleep and then went on to complete recovery.

What would have happened if we had not drained the antrums in these cases? In the second case in particular, I am satisfied the patient would not have recovered, and I do not believe I would have drained the antrum in that case had it not been for my experience in the first case.

We all meet with unusual cases at times and I think they should be reported.

## REPORT OF CASE*

E. C. Yates, M. D.

Lexington.

I wish to briefly report a case in which five different opinions as to the diagnosis have been given by five different pathologists in various sections of the country.

Patient, male, white age 35. About eight years ago he noticed a discharge from his right ear and, about the same time, he noticed a small growth protruding from the external canal. He consulted a physician in Cincinnati at that time, who attempted to remove the growth but was compelled to discontinue the operation due to hemorrhage. Nothing further was done and the patient went along until about a year ago when I saw him with an acute exacerbation of a chronic ear with a sub-periosteal abscess and with a pulsating tumor in the right ear. A definite bruit could be heard over this tumor with a stethoscope and upon inserting a needle into the tumor, definite arterial blood appeared in the syringe.

Wiring of the aneurism was accomplished by the use of 23 feet of silver wire size 18, French gauze, and the pulsation stopped within forty-eight hours. I do not know just what vessel was involved nor the localization.

The tumor was removed and has been variously diagnosed as a carotid body tumor, a carcinoma, and several other things, by five different pathologists.

Radical mastoid operation was done on this man and he is apparently in splendid condition, as far as external appearances are concerned.

I have been trying to get something definite on this case but so far I have been unable to do so, and all I can say is that it was a very unusual tumor in a very unusual location.

## REPORT OF CASE*

S. B. Marks, M. D.

Lexington.

A few days ago, on Tuesday, I saw a boy with a very full middle ear, apparently a streptococcus haemolyticus infection. On the Monday night previous, he had developed a very marked swelling above his ear, extending out towards the parotid gland. My first impression was that he had a ruptured middle ear beneath the soft tissues of the canal, extending up beneath the scalp. He gave no history of any previous ear trouble or discomfort until the preceding Friday. It was on Tuesday that I saw him and by that time he had considerable pain in the ear.

An x-ray plate was made at once. He had a very small mastoid and it was apparently filled with pus. It did not extend back of the anterior wall of the sigmoid sinus, although the space between the canal and the sinus wall was apparently as wide as it was on the other side. I opened the ear and the swelling practically disappeared within the next thirty-six hours except for a small place above the antrum. On Thursday morning, however, the swelling had again increased and by the time I operated upon him at noon it had reached its original proportions. Operation revealed a sclerotic mastoid and I had to proceed as I would in doing a radical mastoid operation.

This is the first case I have ever seen that I have felt justified in classifying as one of oto-sclerotic mastoid, which Wittmaack has said is probably the result of an infection of the antrum through the Eustachian tube in the embryonic period, the infection arising from the vernix caseasa or mecoccium.

It is the first case of the kind I have ever seen and I was very much interested in it.

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*Read before the Eye, Ear, Nose and Throat Section Kentucky State Medical Association.

*Read before Eye, Ear, Nose and Throat Section, Kentucky State Medical Association.

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NEXT MEETING MURRAY

## COUNTY SOCIETY REPORTS

**Boyle**: To the Boyle County Medical Society:

Your committee appointed to examine the questionnaire sent out by the committee of the Kentucky Medical Association on the Cost of Medical Care, begs to submit the following report:

Your committee finds the questionnaire does not give sufficient opportunity to allow full expression of opinion of the reports of the committee on the costs of medical care. Your committee has presumed to offer the following criticisms of the report.

The membership of the committee, representing private practice, is composed of specialists living in large cities and unacquainted with the conditions of general practice and its demands.

The language of the report is euphonious and its aims visionary, but it lacks the force of reason or experience.

There is no reason to believe that the recommendations would in any way tend to elevate or improve the character of medical service, but on the contrary we believe it would lower standards and broadcast the evils of contract practice.

The two major recommendations of the report are:

(1) Group Practice.

(2) Group Payment.

The first erects a medical hierarchy reaching from the rural district to the large city, presenting the possibilites of the development of evils far greater than any now existing. The estimate of ability of practitioners is to be in the hands of the hierarchy, assisted by the state and the state means, of course, the politicians.

The organization of groups arouses all the evils of contract practice. Groups are centered around one or two competent men associated with others of mediocre attainments. There is the tendency to commercialism—too many consultations—consultations with inferior men because they belong to the group. Group practice tends to abolish the valuable personal and confidential relation between doctor and patient.

Division of the cost of expensive equipment can be met by the common use of apparatus without group organization.

2. Group payment means compulsory insurance plus taxation—both of which are undesirable and unattainable. If effected it would create a tremendous demand for unnecessary medical service. More taxation needs no discussion.

Salary support for practitioners of medicine would stifle initiative, sap energy, and reduce the practitioner to the level of the salaried man of political appointment.

We discuss the divisions of the questionnaire under its own numbered headings.

Be it therefore Resolved by the Boyle County Medical Society and Associate Dentists that we are opposed to—

(1) Group Practice.

(a) It is possible but not suitable in our community.

(b) Opposed to contract practice.

(2) Extension of public health services so that they will be available to entire population as an Utopian conception, and unattainable—we therefore oppose it.

(3) Oppose whole idea of group payment. Offer as solution the co-operation of local authorities and profession in each community to devise a plan to divide load of caring for indigent sick.

(4) Oppose the recommendation that the state attempt to evaluate medical service and oppose co-ordination of rural with urban services. The "State" means the politicians and is sufficient answer.

(5) These recommendations are too broadly and indefinitely stated to be discussed in short space.

Minority Report:

(1) We concur in recommending that government competition in the practice of medicine be discontinued. We believe the Federal Government could use existing agencies for care of Veterans at a great saving of expense.

(2) We believe that government care of indigent sick can best be solved by each community.

(3) Answered in No. 4 of Majority support.

(4) Believe general practitioner is amply able to take care of himself if undisturbed by visionary theorists.

(5) Heartily agree.

(6) Believe that the committee's investigations do not disclose any valid reasons for any further investigation or changes.

(7) No County Society can take care of the poor but every County Society, with the help of the county government, can do much in that direction.

Respectfully submitted,
Signed:
J. R. Steele, M. D.
A. A. Hatfield, D. D. S.
S. B. Sharp, D. D. S.
J. R. Cowan, M. D.

This report and resolutions were unanimously adopted by the Boyle County Medical Society and Associated Dentists at their meeting, June 20, 1933.

PERRY C. SANDERS, Secretary.

---

**Grant:** The regular meeting of the Grant County Medical Society was held in Williamstown, Wednesday evening, June 21, 1933 at 7:30 p. m. in the Court House Building, and was a delightfully cool place in spite of the hot weather.

The following members were present: Drs. J. J. Marshall, J. L. Price, N. H. Ellis, C. M. Eckler, C. D. O'Hara, A. D. Blaine, J. W. Abernathy and C. A. Eckler. The visitors present were: Dr. Joe Northcutt and Dr. W. R. Miner, the essayist, both of Covington.

Dr. Price and Dr. Blaine, committee appointed from last meeting on a communication from Dr. A. T. McCormack, made a report that they had decided that it was not necessary for the society to act on this subject. The report was received and the committee discharged.

One report on clinical cases was made by Dr. C. A. Eckler, of an unusual lesion on a young lady's hand which was thought at first to be malignant, but in further study of the case, was proven to be a low grade of sepsis following an operation on the nose.

At this time our essayist being ready other case reports were dispensed with and the subject of the evening now taken up. The subject of the evening was "Hydronephrosis," meaning water on the kidney or a damning back of water on the kidney and seriously damaging the kidney.

The subject was handled by Dr. W. R. Miner of Covington. He handled it in a most interesting manner by citing cases showing us x-ray photographs exhibited on his lantern which he had with him. He also had numerous specimens of kidneys themselves, which had been removed by operation as a cure of this malady. He showed how in a case of this kind the other kidney will begin to take up the work of the damaged kidney and relieve it of all its duties.

Dr. Miner made our meeting a most interesting one and we recorded a motion of thanks and good feeling for Dr. Miner, inviting him back at any future meeting.

Our subject for next meeting has as yet not been decided but we hope to have a skin specialist with us of great reputation.

We now adjourned to meet the third Wednesday in July at the usual hour.

C. A. ECKLER, Secretary.

---

**Grant:** The regular meeting of the Grant County Medical Society was held in Williamstown Wednesday evening, May 17, 1933 at 7:30 p. m. in the Court House Building with the following members present: Dr. J. J. Marshall, N. H. Ellis, A. D. Blaine, J. L. Price, J. D. George, Harry F. Mann, E. M. Menefee, D. D. S; C. M. Eckler, J. W. Abernathy and C. A. Eckler. The visitors present were: Drs. Joe Northcutt, Ed Northcutt, Dr. B. K. Menefee, Dr. L. C. Hafer, Dr. J. D. Henderson and Dr. W. R.

Miner all of Covington, and Dr. W. F. Ray of Independence. Ky.

A communication was now read from Dr. A. T. McCormack and referred to a committee, by a chair, Dr. J. W. Abernathy, consisting of Drs. J. L. Price and A. D. Blaine to report at our next meeting.

Other business and case reports were laid aside at this time and the subject for the evening called for, the topic was, "The Diagnosis of Acute Abdominal Conditions." This was delivered most eloquently and scholarly by Dr. Joe Northcutt of Covington. The doctor handled the subject in a masterly way, leaving very little, if anything, out which is to be found in these acute conditions. He took up in detail the differential points, insisted on a careful examination of our patients. He considered the history of these cases paramount as circumstantial evidence, suggest that we make notes of these cases as he has always done this of the history. His talk was interesting from start to finish and was indeed an instructive lesson, as I am sure that all present will agree.

Dr. W. R. Miner opened the discussion of his paper in a very able manner. He brought out a point of colic that is likely to occur in all hollow tubes which we must keep in mind in abdominal conditions. Dr. B. K. Menefee was next and says it is not so much our ignorance but that we do not try to find out our condition present in making our diagnosis.

Dr. Ed Northcutt was next and showed how kidney stones was sometimes mistaken for appendicitis.

Dr. L. C. Hafer took up some special symptoms of Ectopic Pregnancy. He relies on history very much in these cases.

Dr. J. D. Henderson brought out some new thoughts on obstructive conditions in the abdomen.

Dr. J. J. Marshall congratulated Dr. Joe Northcutt's paper and reported a 13 months old babe of Intussusception, operated by Dr. Joe Northcutt in a moribound state and recovered.

Dr. Mann gave some excellent thoughts and some differential thoughts which were interesting.

Dr. C. M. Eckler discussed numerous cases in his experience where specialists as well as our doctors had failed to make a diagnosis before the adomen was opened.

Dr. J. L. Price was next and thanked Dr. Northcutt for his excellent paper, reporting some very interesting cases.

Dr. J. W. Abernathy and Dr. C. A. Eckler also reported cases in their practice.

Dr. Joe Northcutt in closing the subject, stressed using the facilities we have at hand, x-ray in Intestinal obstruction as being most valuable. He touched up all the points and made his subject very complete. We thank Dr. Joe and invite him again at any future meeting.

The topic for next time will be presented by Dr. W. R. Miner of Covington. He will select his subject to be announced later.

We now adjourned to meet the third Wednesday evening in June at the usual hour.

C. A. ECKLER, Secretary.

---

**Wolfe:** At the regular meeting of the Wolfe County Medical Society the following officers were elected:

J. H. Dunn, M. D., President.

G. M. Center, M. D., Secretary-Treasurer.

The following resolutions were adopted:

(1) Regular meetings to be held the first Monday in each month.

(2) All papers are to be discussed as read.

The County Board of Health also held a meeting with the Society. A resolution was adopted commending the work of the County Boar Health.

J. H. DUNN, Secretary.

---

**Franklin:** The Franklin County Medical Society met in regular session Thursday noon, May 11th, in the Rotary Room of the Capital Hotel. The following members were present: Drs. Ginn, Snyder, Martin, Travis, Patterson, Coblin, Coleman, Jackson and Minish.

Guests for the meeting were Drs. Maxwell and Briggs of Lexington. Dr. Coblin had charge of the program and introduced Dr. Maxwell, who gave a lecture with lantern slide demonstration on "Nephritis." The subject was widely discussed by the members present. After the discussion, the members adjourned to the Hotel Dining Room for lunch.

C. E. YOUMANS, M. D., Secretary.

---

**Latent Lived Diseases**—Skouge says that a positive Takata-Ara reaction in the blood serum is the expression of a considerable liver insufficiency caused by acute or chronic diffuse changes in the liver parenchyma. If the insufficiency disappears, the Takata-Ara reaction becomes negative. A continued positive reaction points to irreparable parenchymatous changes of cirrhotic kind. In several such cases, necropsy revealed pronounced cirrhotic changes of the liver although even shortly before death no clinical symptoms of a liver disturbance were evident. Determination of the coagulation band in liver disorders, which is of little diagnostic value, can, however, in combination with the Takata-Ara reaction contribute to clarifying the etiology of an ascites.

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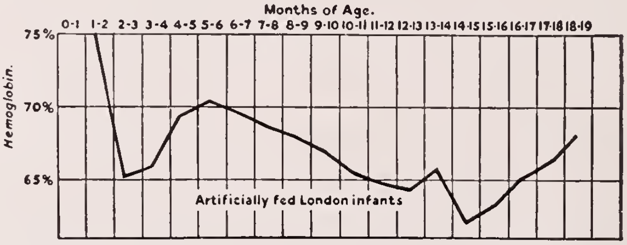
# *Preventing* NUTRITIONAL ANEMIA *in Infants through a Normal Dietary Regimen*

NUTRITIONAL anemia was present in 45% of the breast-fed and 51% of the bottle-fed in a group of more than 1,000 infants studied by Mackay.[1] Although this anemia was of mild degree, *it was sufficient approximately to double the morbidity among the artificially fed.*



*Hemoglobin level in the blood of infants of various ages. Note fall in hemoglobin, which is closely parallel to that of diminishing iron reserve in liver of average infant. Chart adapted from Mackay.*[1]

## *Anemia Prevalent*

Commenting on this work, the British Advisory Committee on Nutrition writes, "This form of anaemia is prevalent among infants, especially those living under conditions of city life, and is attributed to a deficiency of available iron and possibly also of copper. Its most important feature is susceptibility to infection, particularly a liability to colds, otorrhoea, bronchitis, and enteritis, and a tendency for infections to become chronic."[2]

Iron, incorporated in powdered milk, should be given as a routine to bottle-fed infants, according to the recommendations of this committee in a report to the Ministry of Health.

## *Milk Deficient in Iron*

Stored in the liver of the full-term infant is a supply of iron and copper theoretically sufficient for the first six months of life. But actually the reserve is subject to wide variation, probably because of (except in the case of prematures and twins) variations in the iron content of the mother's diet during pregnancy. Hill, for example, says, "If the mother is anemic herself, or if she has eaten little iron-containing food during the last months of pregnancy, her offspring is born with an insufficient iron deposit. . . ."[3]

| | IRON | COPPER |
|---|---|---|
| Cow's Milk, 14 oz. | 1.01 mg. | 0.166 mg. |
| Dextri-Maltose with Vitamin B, 1 oz. | 2.40 | 0.570 |
| | 3.41 | 0.736 |
| Daily Requirement* | 3.11 | "traces" |

*It is generally agreed that breast milk and particularly cow's milk are markedly deficient in iron and copper. But when 1 oz. of Dextri-Maltose with Vitamin B is added to 14 oz. cow's milk, properly diluted (as at 1 month), the above increase in iron and copper results.*

FOR the same reason that it is desirable to reinforce the milk supply of the infant with iron, the trend is toward the introduction of iron-rich solid foods at an early age. The iron content of many foods is variable, however. Leichsenring and Flor[4] found that children's diets planned to contain 5 and 8.5 mg. iron actually contained only 3.25 and 6.5 mg., respectively. Pablum, higher than most foods in iron and containing standardized amounts of this mineral can be administered as early as the third month, when nutritional anemia begins to appear (see chart above). Clinical studies by Summerfeldt[5] show that Mead's Cereal (of which Pablum is the pre-cooked form) is capable of increasing the hemoglobin percentage of growing children.

| | IRON | COPPER |
|---|---|---|
| Cow's Milk, 20 oz. | 1.44 mg. | 0.24 mg. |
| Dextri-Maltose with Vitamin B, 1½ oz. | 3.60 | 0.855 |
| Mead's Cereal or Pablum (dry), ¼ oz. | 1.70 | 0.09 |
| | 6.74 | 1.185 |
| Daily Requirement* | 4.18 | "traces" |

*When ¼ oz. of Pablum is fed to the 3-months-old infant receiving 20 oz. cow's milk and 1½ oz. Dextri-Maltose with Vitamin B, a significant increase in iron and copper takes place.*

* The desirable iron intake for children according to Rose *et al.* is 0.76 mg. per 100 calories. Infant of 1 month (8¼ lb.) and infant of 3 months (11¼ lb.), both require 50 calories per lb.[6]

[1-6] *Bibliography on request.*

MEAD JOHNSON & COMPANY, EVANSVILLE, INDIANA, U.S.A.

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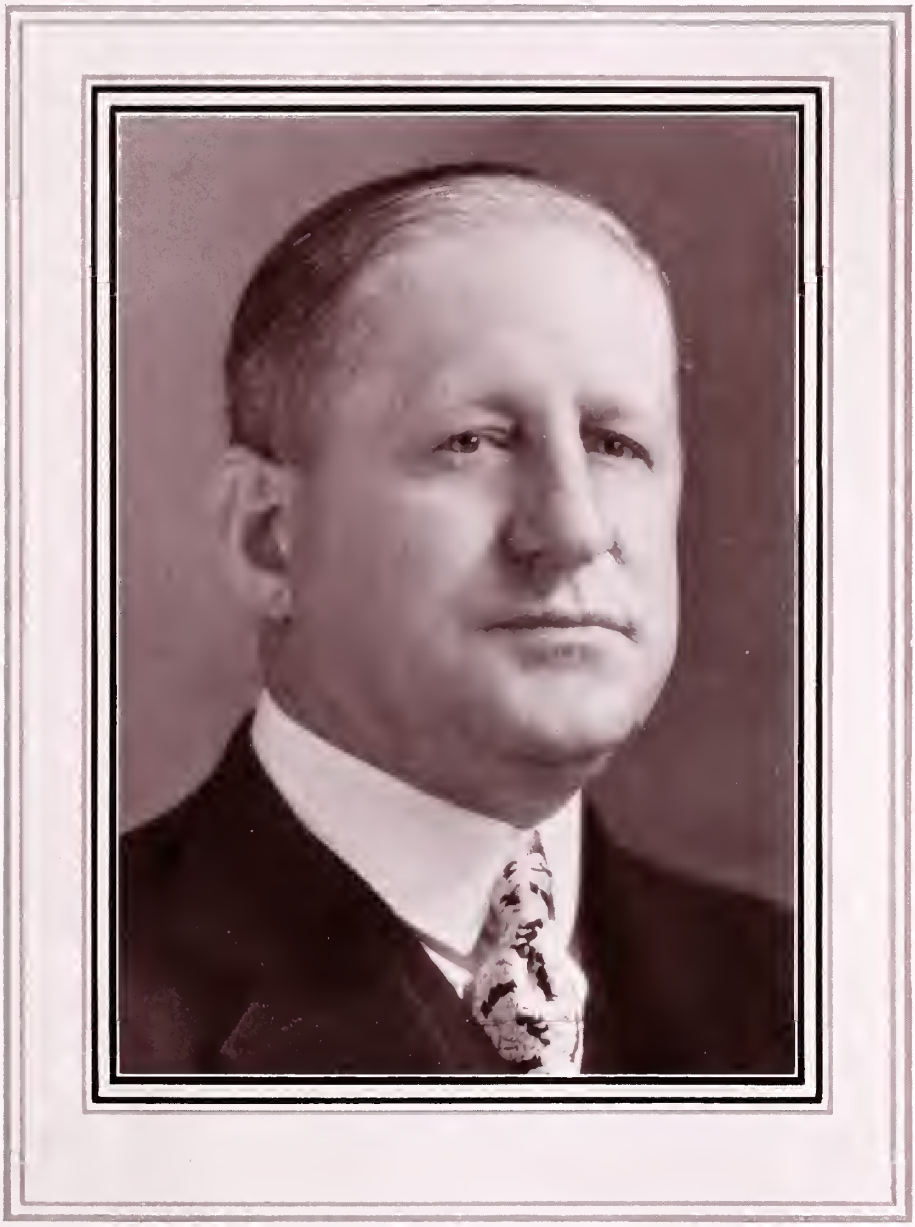

William M. Wathen

PRESIDENT KENTUCKY STATE MEDICAL ASSOCIATION, 1933

KENTUCKY MEDICAL JOURNAL

BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

**Published Under the Auspices of the Council**

VOL. 31 No. 9 BOWLING GREEN, KY. SEPTEMBER, 1933

## JOSEPH N. McCORMACK

In the Dictionary of American Biography, which is published under the auspices of the American Council of Learned Societies by Charles Scribner's Sons, we have the privilege of quoting from the advance sheets of Volume XI, the following, which will be of interest to the readers of this JOURNAL which Doctor Joseph N. McCormack was instrumental in founding.

The Dictionary of American Biography is one of the most noteworthy historical works that has been published. This distinguished biographical work is fast approaching the proportions of the one definitive source of information on the lives of great men of America.

McCormack, Joseph Nathaniel

(Nov. 9, 1847-May 4, 1922), physician and sanitarian, was born on a farm near Howard's Mill, Nelson County. His father, Thomas McCormack, was a native of County Fermanagh, Ireland. His mother, Elizabeth Brown, was of a Pennsylvania family which migrated to Kentucky. He attended the local schools until the age of thirteen, after which he worked on the farm and in a store operated by his father. In 1868 he matriculated in the medical department of the Miami University of Cincinnati, which gave him the degree of M. D. in 1870. He was valedictorian of his class and delivered a thesis upon the physical and mental equality of man and woman. After an interneship in the Cincinnati General Hospital he returned to his father's home in Nelson County, for practice. In 1875 he moved to Bowling Green.

Here, during an epidemic of yellow fever in 1878-79, he attracted the attention of Gov. Luke P. Blackburn, himself a physician, with the result that McCormack was appointed to the State Board of Health shortly after its formation in 1879. He had been a general practitioner with a leaning toward surgery, in which branch he was quite expert. The new appointment, however, focused his interest on the problems of public health, particularly those of the rural districts of his native state. When he was appointed secretary of the state board in 1883, he found it necessary to abandon his private practice. During the thirty years of his tenure of this office he was responsible for many noteworthy reforms. In the legislature of 1882 he caused the introduction of the state's first medical practice act, which failed of passage until the session of 1888. He drafted the state's first sanitary code and was a potent influence in its enactment into law. He followed this achievement with a state-wide campaign of education upon sanitary measures which led to a much-needed reorganization of the Kentucky State Medical Society and of its constituent county societies. The success of these activities gave Dr. McCormack a national reputation in public-health work. In 1892 he was made a member of the International Quarantine Commission. He was a member of the National Conference of State Boards of Health (1888-94) and of the National Conference of State Licensing and Examining Boards (1899).

His most notable service to the medical profession as a whole was his chairmanship (1899-1913) of the committee on organization of the American Medical Association. His ability as an organizer was recognized by the president, Dr. Charles A. L. Reed of Cincinnati, who found the organization in dire straits from an unworkable constitution and internal dissension. McCormack and his colleagues after a year's work brought in a draft of a new constitution and a plan for the rehabilitation of the society. These were presented at the St. Paul meeting in 1901 and adopted after a prolonged debate. It then became McCormack's function to put through the committee's plan by bringing all eligibles into the society and making them subscribers to its journal. To further these purposes he journeyed from state to state and even from county to county. It is said that he delivered his address, "The New Gospel of Health and Long Life," in a majority of the counties of the United States. As a result, the membership of the society was greatly increased, the subscriptions to the journal multiplied sixfold, and the erection of a permanent home for the association in Chicago was made possible. He was a member of the House of Delegates of the Association (1902-7) and of its Council of Health and Public Instruction (1910-13). He resigned from the Association work in 1913 and from the Kentucky state board the same year, but was retained as state sanitary inspector. In the meantime he had been instrumental in the creation and equipment of a model office and laboratory building in Louisville for the State Board of Health. In this building hangs an oil portrait of him, a gift of the medical profession of the state.

He died in Louisville, his home after 1919, from a cerebral hemorrhage. An ardent advocate of cremation, he directed that such disposal be made of his body. Physically he was above medium height, slight of build in his younger years but taking on more weight in later life. He was notably courteous and dignified, with a gift of persuasion in any cause that he advocated. Many honors came to him. He was made president of the state medical society in 1884 and was elected a member of the state legislature in 1912. In 1888 he received the personal thanks of President Cleveland for his work in the cholera epidemic. He was married in New Haven, to Corinne Crenshaw of Glasgow, Ky., on Sept. 14, 1871. A son, Dr. A. T. McCormack, succeeded him on the state board when he resigned in 1913.

### REFERENCES

(Ky. Medic. Jour. (Bowling Green), Jan. 1923, contains a symposium upon the life and work of McCormack by L. S. McMurtry, D. M. Griffith, J. C. W. Beckham. A. T. McCormack, and others; and prints his address on "The New Gospel of Health and Long Life." See also Jour. Am. Medic. Asso., May 13, 1922, portrait; H. A. Kelly in H. A. Kelly and W. L. Burrage. Dict. Am. Medic. Biog. (1928); Courier-Journal (Louisville), (May 5, 1922). J. M. P.

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## WILLARD BARTLETT, M. D., OUR GUEST SPEAKER

WILLARD BARTLETT, M. D.

Dr. Willard Bartlett, St. Louis surgeon, was born in Virden, Illinois. His father was Dr. Aurelius Twombley Bartlett, a graduate of Rush Medical College and St. Louis Medical College and his mother was Susan Adams Brown. Both parents of New England families had been brought in their youth to Illinois.

Dr. Bartlett was educated in the public schools of Virden and at Whipple Academy of Jacksonville where he also entered Illinois College and received his A. B. in 1892 and subsequently his A. M. He graduated at Marion Sims College of Medicine in 1895. After finishing his medical education in St. Louis he spent three years (1895-1898) in German universities and in traveling during his brief vacations. Two years (1895-1897) of this time he worked under Rudolf Virchow in pathology in the University of Berlin. During his first year there he had the privilege of doing the technical work on the many brains by the results of which Virchow verified Charcot's theory on apoplexy. The following year he was Demonstrator of Pathology and Pathological Anatomy at the University of Berlin. 1897-1898 he spent at the University of Strasburg. On his return to St. Louis to enter the active practice of surgery, he was also Professor of Pathology and Pathological Anatomy at the Marion Sims College of Medicine for three years and from 1901-1910 he was Instructor and Professor of Experimental Surgery at Washington University School of Medicine. From 1910-1922 Associate in Surgery, Washington University and Assistant Professor of Surgery there since 1926.

He is the author of a two volume work "The After Treatment of Surgical Patients" as well as "The Surgical Treatment of Goiter" in one volume and an unpublished monograph on the life of Virchow based upon his personal association and opportunity of observation. Dr. Bartlett is also the author of numerous articles in a wide field. Perhaps he is most frequently associated with his contributions to the subject of goiter and of new methods of anaesthesia. Also "he first described a one-stage method of combined abdomino-perineal resection for cancer of the rectosigmoid which has been widely adopted."

WELLS HALL

This building, known as the Rainey T. Wells Hall, is the women's dormitory. In it is the dining hall, where the delegates to the State Medical convention will dine next fall. Surrounded by beautiful trees and luxuriant foliage, this Hall is known for its convenience as well as for its structural beauty.

Dr. Bartlett holds the honorary degree of Doctor of Science. He is a Fellow of the American College of Surgeons, a Member of the American Medical Association, American Society of Clinical Surgery, Southern Surgical Association, Southern Medical Association, Western Surgical Association, Missouri State Medical Association, St. Louis Medical Society, St. Louis Surgical Society, St. Louis Clinics.

He is a Phi Beta Pi, Phi Delta Sigma and Phi Beta Kappa.

Member of the Staffs of the Missouri Baptist Hospital and Jewish Hospital in St. Louis and the St. Louis County Hospital.

Like many men his hobbies have been varied. Boyhood friends tell amusing tales of a youth who led the school in the college band, playing the piano and other instruments. Of these times a keen enjoyment of music remains and it may be a certain manual dexterity. During his student days abroad photography claimed his odd hours as is attested by an extensive collection of lantern slides of Europe as it was in the 'ninties. This hobby naturally led him to a study of optics which later found expression in the "Bartlett No-Shado" operating room light of which he was the inventor; this light demonstrated a new principle in eliminating shadows. He also was the inventor of a simple heat method of sterilizing and storing catgut.

Natural history and archeology intrigue him as a vacation interest and three years ago he organized an expedition to Central America to collect reptiles and animals for the St. Louis Zoo. Dr. Bartlett has studied the archeologic remains in Brittany, the deserts of our own southwest, Mexico and Central America.

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## RESERVATIONS AT MURRAY

The Annual Meeting of the Association will be held at Murray, September 11-14th. The House of Delegates will convene at 2 o'clock on the afternoon of the 11th and the Scientific Session will be called to order on the morning of the 12th.

The splendid scientific program that has been prepared by Doctor Hendon and his associates will attract the attendance of every thoughtful physician in the State who can arrange to be present. In addition to this, it is of the utmost importance in these trying times that we assemble for the consideration of the important problems which involve the integrity of the profession. We are fortunate in Kentucky that, for the present at least, about all we have to do is to preserve the *status quo ante.* No other medical profession in the world has merited the confidence of the people to a greater degree than that of Kentucky. From the earliest period in the State's history to the present time our people have reposed complete confidence in their physicians. We have but to continue to give the same high character of service now and in the future that our predecessors have given in the past to continue to merit this public support and confidence.

Those attending the sessions should make reservations through Doctor Ben B. Keys, at Murray, as soon as possible. There is an excellent hotel at Murray and those who prefer rooms with private baths may secure them in the hotel at the ordinary rates. The dormitories at the Murray Normal School are new and their arrangement is perfect. Reservations in the dormitories will be made at the rate of $2.00 per day per person. This includes meals in the college cafeteria. Of course, college dormitories do not provide private baths, but there are ample shower baths on each floor. Those who do not make their reservations in the dormitories can get meals at the cafeteria for $1.25 a day. Tickets will be on sale at the registration desk.

We want to especially urge that the members who will attend write immediately to Doctor Keys at Murray for reservations for themselves and such members of their families as will accompany them.

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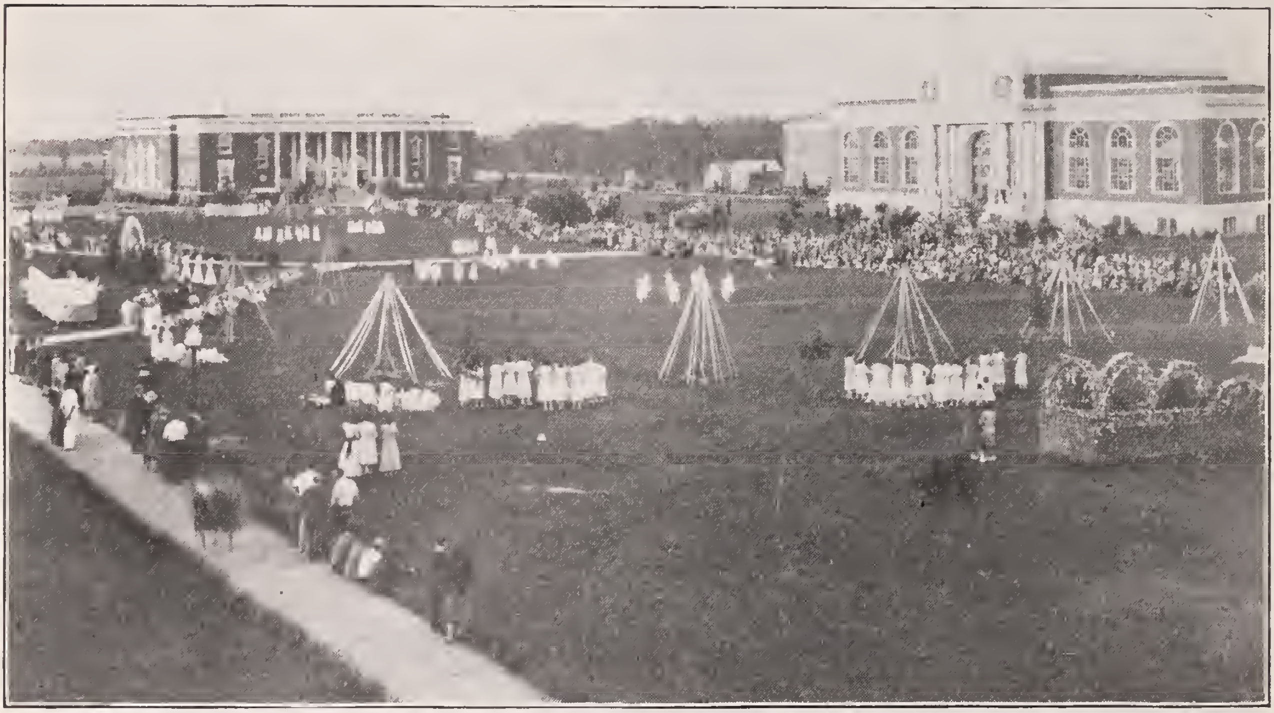
## RAILROAD RATES TO MURRAY

For the accommodation of members who desire railroad transportation the following arrangements have been made.

FARES—

| | |
|---|---|
| Round-trip rail fare, Louisville to Paris, Tenn., good in Pullman cars upon payment of the Pullman charges, return limit fifteen days in addition to the date of sale | $10.00 |
| One-way rail fare, Paris to Murray, good in coaches only | .95 |



MAY DAY ON THE CAMPUS AT MURRAY STATE COLLEGE

Above is one of the typical scenes on the
State Medical Association will convene next fall. campus at Murray State College, where the

In the background at the left is the magnificent auditorium which has a seating capacity of 4,000. Here the delegates will assemble to hold their meetings. This building is listed as among the largest and best equipped auditoriums in the entire state.

To the right is the new library building. This structure of red brick and white Bedford stone was erected at a cost of approximately $250,000. It, too, is one of the finest buildings of its kind in the state.

| | |
|---|---|
| Bus fare between the above points...... | .75 |
| Parlor car seat, Louisville to Paris.... | 1.25 |
| Lower berth, Louisville to Paris........ | 2.50 |

SCHEDULES—

| | | | | | | |
|---|---|---|---|---|---|---|
| Lv. Louisville | 12:47 | PM | L&N | 9:50 | PM | L&N |
| Ar. Paris | 6:44 | PM | L&N | 4:15 | AM | L&N |
| Lv. Paris | 7:20 | PM | NC&StL | 8:00 | AM | Bus |
| Ar. Murray | 7:29 | PM | NC&StL | 9:00 | AM | Bus |
| Lv. Murray | 4:03 | PM | NC&StL | 8:33 | AM | NC&StL |
| Ar. Paris | 4:47 | PM | NC&StL | 9:18 | AM | NC&StL |
| Lv. Paris | 5:12 | PM | L&N | 10:48 | AM | L&N |
| Ar. Louisville | 2:15 | AM | L&N | 4:55 | PM | L&N |

Sleeper may be occupied until 8:00 A. M.

If there will be as many as ten or more to make the trip together on the 9:50 P. M. train, there will be a special sleeper which, after arrival at Paris at 4:15 A. M., will be parked for occupancy until 7:30 A. M. This same arrangement can be made on the 5:17 P. M. train returning from Paris to Louisville.

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## OFFICIAL ANNOUNCEMENTS

### PRELIMINARY PROGRAM KENTUCKY STATE MEDICAL ASSOCIATION, MURRAY STATE TEACHERS COLLEGE, MURRAY
SEPTEMBER 11-14, 1933

### GENERAL MEETINGS
TUESDAY, SEPTEMBER 12
7:00 A. M.-8:30 A. M.

Dry Clinic

TUESDAY, 9:00 A. M.

Call to Order by the President, Philip F. Barbour, M. D., Louisville.
Invocation, Rev. E. B. Motley, Pastor First Christian Church, Murray.
Address of Welcome, Dr. Rainey T. Wells, Omaha, Nebraska.
Response to Address of Welcome, George A. Hendon, M. D., Louisville.
Installation of President.
Report of Committee on Arrangements, Ben B. Keys, M. D., Murray.

TUESDAY, 10:00 A. M.

1. Contagious Diseases:
    a. Scarlet Fever, J. Wilbur Armstrong, M. D., Berea.
    b. Diphtheria, R. K. Galloway, M. D., Henderson.
    c. Anterior Poliomyelitis, Frank Campbell, M. D., Somerset.
2. Anemias in Children, T. Cook Smith, M. D., Louisville.
3. Early Diagnosis of Tuberculosis, Paul A. Turner, M. D., Louisville.

### SPECIAL ORDER AT 12 M.
Oration in Surgery

The Treatment of Perforative Appendicitis with Pathology and Pathological Physiology, the Foundation, E. W. Jackson, M. D., Paducah.

TUESDAY, 2:00 P. M.

1. The Acute Abdomen:
    a. Visceral Perforation, C. A. Vance, M. D., Lexington.
    b. Intestinal Obstruction, G. Y. Graves, M. D., Bowling Green.
    c. Acute Appendicitis, Guy Aud, M. D., Louisville.
2. Traumatic Injuries to the Spine, Frank P. Strickler, M. D., Louisville.
3. Dislocation and Fractures of the Elbow, E. C. Walter, M. D., Mayfield.
4. Cancer of the Breast, Waller O. Bullock, M. D., Lexington.

### PUBLIC MEETING AT 8:00 P. M.
TUESDAY, SEPTEMBER 12

President's Address, W. M. Martin, M. D., Harlan.
Annual Oration, A Movie Film Illustrating Trachoma and Trachoma Work Among the White People of the United States, Robert Sory, M. D., Richmond.

WEDNESDAY, SEPTEMBER 13
7:00 A. M.-8:30 A. M.

Dry Clinic.

WEDNESDAY, 9:00 A. M.

1. Obstetrical Symposium:
    a. The Tuberculous Pregnant Woman, J. T. Reddick, M. D., Paducah.
    b. Immediate Repair of Cervix and Perineum, Garfield Slater, M. D., Covington.
    c. Management of Postpartum Infection, H. A. Davidson, M. D., Louisville.
2. Management of Incomplete Abortion, Thomas K. VanZandt, M. D., Louisville.
3. Hyperemesis Gravidarum, S. P. Oldham, M. D., Owensboro.
4. Indications for Cesarean Section, D. P. Hall, M. D., Louisville.

### SPECIAL ORDER AT 12:00 M.
Oration in Medicine

The Hospital as a Community Problem, C. C. Turner, M. D., Glasgow.

WEDNESDAY, 2:00 P. M.

1. Carbon Dioxide Therapy, John W. Scott, M. D., Lexington.
2. The Cause and Cure of Jaundice, Charles F. Long, M. D., Elizabethtown.
3. The Significance of Cardiac Pain, E. B. Houston, M. D., Murray.
4. The Modern Treatment of Pneumonia, O. L. Barnes, M. D., Hopkinsville.
5. Certain Botanical Remedies Upon Whose Effect Our Fathers Depended and Were Rarely Disappointed, Leon L. Solomon, M. D., Louisville.

SUBSCRIPTION DINNER AT 6:30 P. M.

For Members of the Association, Wives, Friends and Guests.

Address, A Consideration of Four Eras in Medicine as the Basis for a Prophecy, Willard Bartlett, M. D., St. Louis, Missouri.

Address, Clinical Hypothyroidism, Oliver P. Kimball, M. D., Cleveland, Ohio.

THURSDAY, SEPTEMBER 14, 9:00 A. M.

1. Cancer of the Colon, Fred W. Rankin, M. D., Lexington.
2. Colitis, Granville S. Hanes, M. D., Louisville.
3. The Use of the Rodger Anderson Wellleg Counter-traction Splint in Fractures of the Neck of the Femur, Orville R. Miller, M. D., Louisville.
4. Primary Carcinoma of the Lung, D. B. Harding, M. D., Lexington.
5. Otitis Media and Its Complications, G. W. White, M. D., Henderson.

THURSDAY, 2:00 P. M.

1. Pyloric Stenosis—Plea for Early Diagnosis, Gant Gaither, M. D., Hopkinsville.
2. The Modern Treatment of Typhoid Fever, J. F. Dunn, M. D., Arlington.
3. Gonorrhea and Its Complications in Women, E. Dargan Smith, M. D., Owensboro.

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## REFERENCE COMMITTEES OF THE HOUSE OF DELEGATES

COMMITTEE ON CREDENTIALS:

A. W. Nickell, M. D., Louisville, Chairman
I. H. Browne, M. D., Winchester
C. B. VanArsdall, M. D., Harrodsburg

COMMITTEE ON SCIENTIFIC WORK:

W. M. Martin, M. D., President-Elect, Harlan, Chairman
A. T. McCormack, M. D., Secretary, Louisville
George A. Hendon, M. D., Louisville

MEDICO-LEGAL COMMITTEE:

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Marshall McDowell, M. D., Cynthiana
A. T. McCormack, M. D., Louisville

COMMITTEE ON CRIPPLED CHILDREN:

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J. D. Trawick, M. D., Louisville
W. Barnett Owen, M. D., Louisville
C. C. Garr, M. D., Lexington

COMMITTEE ON JOURNAL:

Oscar O. Miller, M. D., Louisville, Chairman
G. R. Keen, M. D. Scottsville
J. D. Williams, M. D., Ashland

COMMITTEE ON LEGISLATION AND PUBLIC POLICY:

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J. D. Sory, M. D., Madisonville
Claude Youtsey, M. D., Newport
W. M. Martin, M. D., President-Elect, Harlan
A. T. McCormack, M. D., Secretary, Ex-officio, Louisville

COMMITTEE ON MISCELLANEOUS BUSINESS:

H. P. Linn, M. D., Paducah, Chairman
J. F. Hahs, M. D., LaCenter
John B. Wadlington, M. D., Princeton

COMMITTEE ON PUBLICITY:

E. D. Covington, M. D., Murray, Chairman
E. B. Houston, M. D., Murray
P. A. Hart, M. D., Murray

COMMITTEE ON SCIENTIFIC AND COMMERCIAL EXHIBITS:

V. A. Stilley, M. D., Benton, Chairman
H. K. Buttermore, M. D., Liggett
C. C. Howard, M. D., Glasgow

COMMITTEE ON MEDICAL EDUCATION:

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J. D. Northcutt, M. D., Covington
J. W. Armstrong, M. D., Berea

COMMITTEE ON PERIODIC HEALTH EXAMINATION:

Oscar O. Miller, M. D., Louisville, Chairman
W. D. Henry, M. D., Crutchfield
W. H. Smith, M. D., Danville

COMMITEE ON HOSPITAL STANDARDIZATION:

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C. C. Woods, M. D., Ashland
W. D. Reddish, M. D., Lexington
P. F. Barbour, M. D., President, Ex-officio, Louisville

COMMITTEE ON WORKMEN'S COMPENSATION LAW:

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C. G. Forsee, M. D., Louisville
H. K. Buttermore, M. D., Liggett
M. D. Flanary, M. D., Pikeville
A. M. Gross, M. D., Hazard

HEART COMMITTEE:

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R. E. Smith, M. D., Henderson
Austin Bell, M. D., Hopkinsville
J. W. Kincaid, M. D., Catlettsburg
Walter Byrne, Jr., M. D., Russellville
John W. Scott, M. D., Lexington
J. Rowan Morrison, M. D., Louisville
W. L. Tyler, M. D., Owensboro

COMMITTEE ON CONTROL OF CANCER:

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Wallace Frank, M. D., Louisville
C. A. Vance, M. D., Lexington
E. E. Archer, M. D., Paintsville
A. W. Davis, M. D., Madisonville
Paul Gronnerud, M. D., Pikeville

Commitee on Health Problems in Education:
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J. F. Johnson, M. D., Georgetown
W. B. Moore, M. D., Cynthiana

Committee on County Hospitals:
W. B. Atkinson, M. D., Campbellsville, Chairman
C. G. Daugherty, M. D., Paris
J. L. Toll, M. D., Lawrenceburg

Commitee on Medical Ethics:
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John E. Kincheloe, M. D., Hardinsburg
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F. M. Travis, M. D., Frankfort

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C. C. Threlkel, M. D., Morgantown
J. B. Wadlington, M. D., Princeton

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G. A. Hendon, M. D., Louisville
L. H. South, M. D., Louisville

Committee on Woman's Auxiliary:
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Mrs. G. A. Hendon, Louisville
Mrs. E. B. Houston, Murray

Committee on McDowell Memorial:
Rice Cowan, M. D., Danville, Chairman
Louis Frank, M. D., Louisville

Committee on Report of Council:
C. G. Daugherty, M. D., Paris, Chairman
W. T. Little, M. D., Calvert City
E. L. Gates, M. D., Greenville

Committee on Military Medicine and Medical Veterans' Affairs:
E. C. Walter, M. D., Mayfield, Chairman
S. C. Smith, M. D., Ashland
H. E. Prather, M. D., Hickman

Committee on Prevention of Goiter:
R. R. Elmore, M. D., Louisville, Chairman
W. I. Hume, M. D., Louisville
P. C. Sanders, M. D., Danville
J. N. Bailey, M. D., Paducah
J. W. York, M. D., Canmer

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**Skin Tuberculosis of Exogenous Origin in Adults**—In the first two of the three cases reported by Rotnes, infection occurred on the chin and the upper lip, respectively, after the patients were kissed by tuberculous persons. In the third case the tuberculous ulcer on the right thumb is thought to have been an autointoxication tuberculosis, appearing as a primary complex. All three patients were women. The accompanying erythema nodosum in the second and third cases is regarded as a tuberculous allergy phenomenon.

## OFFICIAL CALL

### The Eighty-Third Annual Meeting of the Kentucky State Medical Association, to be Held at Murray State Teachers College, Murray.

To the Officers and Members of the Component County Societies of the Kentucky State Medical Association.

The Eighty-third Annual Meeting of the Kentucky State Medical Association will convene in the Auditorium, Monday, Tuesday, Wednesday and Thursday, September 11, 12, 13, 14, 1933.

#### THE HOUSE OF DELEGATES

The House of Delegates of the Kentucky State Medical Association will convene in the Auditorium at 2 p. m. on Monday, September 11.

#### FIRST GENERAL SESSION

The First General Session which constitutes the opening exercises of the scientific function of the Association will be held in the Auditorium, Tuesday, September 12, at 9 a. m.

#### THE COUNCIL

The Council will convene in the Auditorium, Monday, September 11, at 10:30 a. m.

#### THE REGISTRATION DEPARTMENT

The Registration Department will be open in the Auditorium, from 10 a. m. to 5 p. m., on Monday, September 11; from 8 a. m. to 5 p. m., on Tuesday and Wednesday, September 12, 13, and from 8 a. m. to 12 m., on Thursday, September 14..

#### COUNCILOR DISTRICTS

##### FIRST DISTRICT

V. A. Stilley, Benton, Councilor.

Ballard
Caldwell
Calloway
Carlisle
Hickman
Livingston
McCracken
Marshall
Trigg
Crittenden
Fulton
Graves
Lyon

##### SECOND DISTRICT

D. M. Griffith, Owensboro, Councilor.

Daviess
Hancock
Henderson
Hopkins
McLean
Muhlenberg
Ohio
Union
Webster

##### THIRD DISTRICT

C. C. Howard, Glasgow, Councilor.

Allen
Barren
Butler
Christian
Cumberland
Logan
Monroe
Metcalfe
Simpson
Todd
Warren-Edmonson

##### FOURTH DISTRICT

J. I. Greenwell, New Haven, Councilor

Breckinridge
Bullitt
Grayson
Hardin
Hart
Larue
Meade
Nelson
Spencer

##### FIFTH DISTRICT

W. E. Gardner, Louisville, Councilor

Carroll
Oldham
Franklin
Gallatin
Henry
Jefferson
Shelby
Trimble
Owen

##### SIXTH DISTRICT

R. C. McChord, Lebanon, Councilor

Adair
Anderson
Boyle
Green
Marion
Mercer
Taylor
Washington

##### SEVENTH DISTRICT

V. G. Kinnaird Lancaster, Councilor

Casey
Clinton
Garrard
Lincoln
McCreary
Pulaski
Rockcastle
Russell
Wayne

### EIGHTH DISTRICT

C. W. Shaw, Alexandria, Councilor

Boone
Bracken
Campbell-Kenton
Fleming
Grant
Harrison
Mason
Nicholas
Pendleton
Robertson

### NINTH DISTRICT

S. C. Smith, Ashland, Councilor

Boyd
Carter
Elliott
Floyd
Greenup
Johnson
Lewis
Lawrence
Martin
Magoffin
Pike

### TENTH DISTRICT

C. A. Vance, Lexington, Councilor

Bath
Bourbon
Breathitt
Clark
Fayette
Jessamine
Lee
Madison
Menifee
Montgomery
Powell
Morgan
Rowan
Scott
Wolfe
Estill
Woodford

### ELEVENTH DISTRICT

H. K. Buttermore, Liggett, Councilor

Bell
Clay
Harlan
Jackson
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# CONSTITUTION AND BY-LAWS OF THE KENTUCKY STATE MEDICAL ASSOCIATION ADOPTED AT PADUCAH IN 1902 AS AMENDED

## CONSTITUTION

### Article I. Name of the Association

The name and title of this organization shall be the Kentucky State Medical Association.

### Article II.—Purpose of the Association

The purpose of the Association shall be to federate and bring into compact organization the entire medical profession of the State of Kentucky, and to unite with similar associations in other states to form the American Medical Association, with a view to the extension of medical knowledge, and to the advancement of medical science, to the elevation of the standard of medical education, and to the enactment and enforcement of just medical laws; to the promotion of friendly intercourse among physicians, and to the guarding and fostering of their material interest and to the enlightenment and direction of public opinion in regard to the great problem of state medicine, so that the profession shall become more capable and honorable within itself, and more useful to the public in the prevention and cure of disease, and in prolonging and adding comfort to life.

### Article III. Component Societies

Component Societies shall consist of those county medical societies which hold charters from this Association.

### Article IV.—Composition of the Association

Section 1. This Association shall consist of Members, Delegates and Guests.

Sec. 2.—Members. The members of this Association shall be the members of the component county medical societies.

Sec. 3.—Delegates. Delegates shall be those members who are elected in accordance with this Constitution and By-lays to represent their respective component county societies in the House of Delegates of this Association.

Sec. 4.—Guests. Any distinguished physician not a resident of this State may become a guest during any Annual Session upon invitation of the Association or its Council, and shall be accorded the privileges of participating in all of the scientific work of that session.

### Article V.—House of Delegates

The House of Delegates shall be the legislative and business body of the Association, and shall consist of (1) Delegates elected by the component county societies, (2) *ex-officio*, the officers of the Association as defined in Article VIII, Section 1, of this Constitution, and (3) the five immediate past presidents.

### Article VI.—Sections and District Societies

The House of Delegates may provide for a division of the scientific work of the Association into appropriate Sections, and for the organization of such Councilor District Societies as will promote the best interest of the profession, such societies to be composed exclusively of members of component county societies.

### Article VII.—Sessions and Meetings

Section 1. The Association shall hold an Annual Session, during which there shall be held daily not less than two General Meetings, which shall be open to all registered members, delegates and guests.

Sec. 2. The time and place for holding each annual session shall be fixed by the House of Delegates.

### Article VIII.—Officers

Section 1. The officers of this Association shall be a President, three Vice-Presidents, a Secretary, a Treasurer, and eleven Councilors.

Sec. 2. The President and Vice-Presidents shall be elected for a term of one year. The Secretary, Treasurer and Councilors shall be elected for terms of five years each, the Councilors being divided into classes so that two shall be elected each year. All of these officers shall serve until their successors are elected and installed.

Sec. 3. The officers of the Association shall be elected by the House of Delegates on the morning of the last day of the Annual Session but no Delegate shall be eligible to any office named in the preceding section, except that of Councilor, and no person shall be elected to any such office who is not in attendance upon the Annual Session, and who has not been a member of the Association for the past two years.

### ARTICLE IX.—FUNDS AND EXPENSES

Funds for meeting the expenses of the Association shall be arranged for by the House of Delegates by an equal per capita assessment upon each county society to be fixed by the House of Delegates, by voluntary contribution, and from the profits of its publication. Funds may be appropriated by the House of Delegates to defray the expenses of the Annual Session, for publication and for such other purposes as will promote the welfare of the Association and profession.

### ARTICLE X.—REFERENDUM

The General Meeting of the Association may, by a two-thirds vote, order a general referendum upon any question pending before the House of Delegates, and the House of Delegates may, by a similar vote of its own members, or after a like vote of the General Meeting, submit any such question to the membership of the Association for a final vote; and if the persons voting shall comprise a majority of all the members, a majority of such vote shall determine the question and be binding upon the House of Delegates.

### ARTICLE XI.—THE SEAL

The Association shall have a common Seal with power to break, change or renew the same at pleasure.

### ARTICLE XII.—AMENDMENTS

The House of Delegates may amend any article of this Constitution by a two-thirds vote of the delegates registered at that Annual Session, provided that such amendment shall have been presented in open meeting at the previous Annual Session, and that it shall have been sent officially to each component county society at least two months before the session at which final action is to be taken.

## BY-LAWS

### CHAPTER I.—MEMBERSHIP

Section 1. All members of the Component County Societies shall be privileged to attend all meetings and take part in all the proceedings of the Annual Session. and shall be eligible to any office within the gift of the Association. PROVIDED, that no physician may become a member of any county society unless he signs and keeps inviolate the following pledge:

I hereby promise upon my honor as a gentlemen that I will not so long as I am a member of the Kentucky State Medical Association practice division of fees in any form; neither by collecting fees from others referring patients to me nor by permitting them to collect my fees for me; nor will I make joint fees with physicians or surgeons referring patients to me for operation or consultation; neither will I in any way, directly or indirectly, compensate anyone referring patients to me nor will I utilize any man as an assistant as a subterfuge for this purpose.

Sec. 2. The name of a physician upon the properly certified roster of members, or list of delegates, of a chartered county society which has paid its annual assessment, shall be *prima facie* evidence of his right to register at the Annual Session in the respective bodies of this Association.

Sec. 3. No persons who are under sentence or suspension or expulsion from any component society of this Association, or whose name has been dropped from its roll of membership shall be entitled to any of the rights or benefits of this Association, nor shall he be permitted to take part in any of its proceedings. until such time as he has been relieved of such liability.

Sec. 4. Each member in attendance at the Annual Session shall enter his name on the registration book indicating the component society of which he is a member. When his right to membership has been verified by reference to the roster of the society. he shall receive a badge which shall be evidence of his right to all the privileges of membership at that session. No member or delegate shall take part in any of the proceedings of an annual session until he has complied with the provisions of this section.

### CHAPTER II.—ANNUAL AND SPECIAL SESSION OF THE ASSOCIATION

Section 1. The Association shall hold an annual session, meeting every third year in the city of Louisville, and the other two years at some point in the State fixed at the preceding annual session.

### CHAPTER III.—GENERAL MEETING

Section 1. The General Meeting shall include all registered members, delegates and guests, who shall have equal rights to participate in the proceedings and discussions; and except guests, to vote on pending questions. Each General Meeting shall be presided over by the President or in his absence or disability or upon his request, by one of the Vice-Presidents. Before it, at such time and place as may have been arranged, shall be delivered the annual address of the President, and the annual orations and the entire time of the sessions as far as may be, shall be devoted to papers and discussion relating to scientific medicine.

Sec. 2. The General Meeting shall have authority to create committees or commissions for scientific investigation of special interest and importance to the profession and public, and to receive and dispose of reports of the same; but any expense in connection therewith must first be approved by the House of Delegates.

Sec. 3. Except by special vote, the order of exercises, papers and discussions as set forth in the official program shall be followed from day to day until it has been completed.

Sec. 4. No address or paper before the Association, except those of the President and orators shall occupy more than twenty minutes in its delivery; and no member shall speak longer than five minutes, nor more than once on any subject.

Sec. 5. All papers read before the Association shall be its property. Each paper shall be deposited with the Secretary when read and if this is not done it shall not be published.

### CHAPTER IV.—HOUSE OF DELEGATES

Section 1. The House of Delegates shall meet annually at the time and place of the Annual Session of the Association and shall so fix its hours of meeting as not to conflict with the first General Meeting of the Association, or with the meeting held for the address of the President and the annual orations and so as to give delegates an opportunity to attend the other scientific proceedings and discussions so far as is consistent with their duties. But if the business interests of the association and profession require it may meet in advance or remain in session after the final adjournment of the General Meeting.

Sec. 2. Each component county society shall be entitled to send to the House of Delegates each year one delegate for every twenty-five members, and one for each major fraction thereof, but each county society holding a charter from this Association, which has made its annual report and paid its assessments as provided in this Constitution and By-Laws shall be entitled to one delegate. In case the regularly elected delegate or alternate is unable to attend the annual meeting of the Association, the President of the county society may in writing appoint an alternate, who shall have the rights and privileges of a delegate.

Sec. 3. A majority of the registered delegates shall constitute a quorum and all of the meetings of the House of Delegates shall be open to members of the Association.

Sec. 4. It shall, through its officers, Advisory Council, and otherwise, give diligent attention to and foster the scientific work and spirit of the Association, and shall constantly study and strive to make each Annual Session a stepping stone to further ones of higher interest.

Sec. 5. It shall consider and advise as to the material interest of the profession, and of the public in those important matters wherein it is dependent upon the profession, and shall use its influence to secure and enforce all proper medical and public health legislation, and to diffuse popular information in relation thereto.

Sec. 6. It shall make careful inquiry into the condition of the profession of each county in the State, and shall have authority to adopt such methods as may be deemed most efficient for building up and increasing the interest in such county societies as already exist and for organizing the profession in counties where societies do not exist. It shall especially and systematically endeavor to promote friendly intercourse between physicians of the same locality and shall continue these efforts until every physician in every county of the State who can be made reputable, has been brought under medical society influence.

Sec. 7. It shall encourage post-graduate work in medical centers as well as home study and research and shall endeavor to have the results of the same utilized and intelligently discussed in the county societies. With these ends in view, five years after the adoption of the By-Laws, no voluntary paper shall be placed upon the annual program nor be heard in the Association which has not first been read in the county society of which the author is a member.

Sec. 8. It shall elect representatives to the House of Delegates of the American Medical Association in accordance with the Constitution and By-Laws of that body in such manner that not more than one-half of the delegates shall be elected in any one year.

Sec. 9. It shall upon application provide and issue charters to county societies organized to conform to the spirit of the Constitution and By-Laws.

Sec. 10. In sparsely settled sections it shall have authority to organize the physicians of two or more counties to be designated by hyphenating the names of two or more counties so as to distinguish them from district and other classes of societies and these societies, when organized and chartered shall be entitled to all the privileges and representation provided herein for county societies, until such counties may be organized separately.

Sec. 11. It may divide the counties of the State into Councilor Districts, and, when the best interests of the Association and profession will be promoted thereby, organize in each district a medical society, to meet midway between the annual session of the Association and members of the chartered county societies and none other shall be members.

When so organized from the presidents of such district societies shall be chosen the Vice-Presidents of this Association and the Presidents of the county societies of the district shall be the Vice-Presidents of such district societies.

Sec. 12. It shall have authority to appoint committees for special purposes from among members of the Association who are not members of the House of Delegates, and such committee may report to the House of Delegates in person, and may participate in the debate thereon.

Sec. 13. It shall approve all memorials and resolutions issued in the name of the Association before the same shall become effective.

Sec. 14. It shall present a summary of its proceedings to the last General Meeting of each Annual Session, and shall publish the same in the JOURNAL.

### CHAPTER V.—ELECTIONS OF OFFICERS

Section 1. All elections shall be by secret ballot, and a majority of the votes cast shall be necessary to elect, provided, however, that when there are more than two nominees the nominee receiving the least number of votes on the first ballot shall be dropped and the balloting continue until an election occurs in like manner.

Sec. 2. Any member known to have directly or indirectly solicited votes for, or sought any office within the gift of this Association shall be ineligible for any office for two years.

Sec. 3. The election of officers shall be the first order of business of the House of Delegates after the reading of the minutes on the morning of the last day of the General Session.

Sec. 4. Nominations for President shall be called for by counties.

### CHAPTER VI.—DUTIES OF OFFICERS

Section 1. The President shall preside at all meetings of the Association and of the House of Delegates; shall appoint all committees not otherwise provided for; shall deliver annual address at such time as may be arranged; shall give a deciding vote in case of a tie, and shall perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession of the State during his term of office and so far as practicable, shall visit by appointment, the various sections of the State and assist the Councilors in building up the county societies and in making their work more practical and useful.

Sec. 2. The Vice-President shall assist the President in the discharge of his duties. In the event of his death, resignation or removal the Council shall elect one of the Vice-Presidents to succeed him.

Sec. 3. The Treasurer shall give bond for the trust imposed in him whenever the House of Delegates shall deem it requisite. He shall demand and receive all funds due the association, together with the bequests and donations. He shall, under the direction of the House of Delegates, sell or lease any real estate belonging to the Association and execute the necessary papers, and shall in general subject to such direction, have the care and management of the fiscal affairs of the Association. He shall pay money out of the Treasury only on written order of the President, countersigned by the Secretary; he shall subject his accounts to such examinations as the House of Delegates may order, and he shall annually render an account of his doings and of the state of funds in his hands.

The Council shall be the executive body of the House of Delegates and between sessions shall exercise the powers conferred on the House of Delegates by the Constitution and By-Laws.

Sec. 4. The Secretary, acting with the Committee on Scientific Work, shall prepare and issue the program for and attend all meetings of the Association and of the House of Delegates and he shall keep minutes of their respective proceedings in separate record books. He shall charge upon his books the assessments against each component county society at the end of the fiscal year; he shall collect and make proper credits for the same, and perform such other duties as may be assigned to him. He shall be custodian of all record books and papers belonging to the Treasurer, and shall keep account of and promptly turn over to the Treasurer all funds of the Association which come into his hands. He shall provide for the registration of the members and delegates at the Annual Sessions. He shall keep a card index register of all the legal practitioners of the State by counties, noting on each his status in relation to his county society and upon request shall transmit a copy of this list to the American Medical Association for publication. In so far as it is in his power he shall use the printed matter, correspondence and influence of his office to aid the Councilors in the organization and improvement of the county societies and in the extension of the power and usefulness of this Association. He shall conduct the official correspondence, notifying members of meetings, officers of their election, and committees of their appointment and duties. He shall act as secretary of the Committee on Scientific Work. He shall be editor of the KENTUCKY MEDICAL JOURNAL. He shall employ such assistants as may be ordered by the Council or the House of Delegates. He shall annually make a report of his doings to the House of Delegates.

In order that the Secretary may be enabled to give that amount of time to his duties which will permit of his becoming proficient it is desirable that he shall receive some compensation. The amount of his salary shall be fixed by the House of Delegates.

### CHAPTER VII.—COUNCIL

Section 1. The Council shall hold daily meetings during the annual session of the Associations and at such other times as necessity may require, subject to the call of the Chairman or on petition of three Councilors. It shall meet on the last day of the Annual Session of the Association for re-organization and for the outlining of the work for the ensuing year. At this meeting it shall elect a chairman and secretary and it shall keep a permanent record cf its proceedings. It shall through its Chairman, make an annual report to the House of Delegates at such time as may be provided, which report shall include an audit of the account of the Secretary and Treasurer and other agents of this Association, and shall also specify the character and cost of all the publications of the Association during the year, and the amounts of all other property belonging to the Association, or under its control, with such suggestions as it may deem necessary. In the event of a vacancy in any office the Council may fill the same until the annual election.

Sec. 2. Each Councilor shall be organizer, peacemaker and censor for his district. He shall visit each county in his district at least once a year for the purpose of organizing component societies where none exist, for inquiring into the condition of the profession and for improving and increasing the zeal of the county societies and their members. He shall make an annual report of his doings, and of the condition of the profession of each county in his district to each Annual Session of the House of Delegates. The necessary traveling expenses incurred by Councilor in the line of his duties herein imposed may be allowed by the House of Delegates upon a proper itemized statement, but this shall not be construed to include his expense in attending the Annual Session of the Association.

Sec. 3. Collectively the Council shall be the Board of Censors of the Association. It shall consider all questions involving the right and standing of members, whether in relation to other members, to the component societies or to this Association. All questions of an ethical nature brought before the House of Delegates of the General Meeting shall be referred to the Council without discussion. It shall hear and decide all questions of discipline affecting the conduct of members or a county society upon which appeal is taken from the decision of an individual Councilor. Its decision in all such cases shall be final.

Sec. 4. The Council shall have the right to communicate the views of the profession and of the Association in regard to health, sanitation and other important matters to the public and the lay press. Such communications shall be officially signed by the chairman and secretary of the Council, as such.

Sec. 5. The Council shall provide for and superintend the publication and distribution of all proceedings, transactions and memoirs of the Association and shall have authority to appoint such assistants to the editors as it deems necessary. It shall manage and conduct the KENTUCKY MEDICAL JOURNAL, which is the organ of the Association, and all money received by the JOURNAL, the Council or any officer of the Association, shall be paid to the Treasurer of the Association on the first of each month.

Sec. 6. All reports on scientific subjects and all scientific discussions and papers read before the Association shall be referred to the KENTUCKY MEDICAL JOURNAL for publication. The editor, with the consent of the Councilor for the District in which he resides may curtail or abstract papers or discussions, and the Council may return any paper to its author which it may not consider suitable for publication.

Sec. 7. All commercial exhibits during the annual session shall be within the control and direction of the Council.

### CHAPTER VIII.—COMMITTEES

Section 1. The standing committees shall be as follows:

A Committee on Scientific Work.

A Committee on Public Policy and Legislation.

A Committee on Medical Education.

A Medico-Legal Committee.

A Committee on Arrangements, and such other committees as may be necessary. Such committees shall be elected by the House of Delegates, unless otherwise provided.

Sec. 2. The Committee on Scientific Work shall consist of three members of which the President-elect shall be a member and Chairman, and the Secretary shall be a member and Secretary, and shall determine the character and scope of the scientific proceedings of the Association, subject to the provisions or the instructions of the House of Delegates or of the Association, or to the provisions of the Constitution and By-Laws. Thirty days previous to each annual session it shall prepare and issue a program announcing the order in which papers, discussions and other business shall be presented which shall be adhered to by the Association as nearly as practicable.

Sec. 3. The Committee on Public Policy and Legislation shall consist of three members and the President and Secretary. Under the direction of the House of Delegates it shall represent the Association in securing and enforcing legislation in the interest of the public health and scientific medicine. It shall keep in touch with the profession and public opinions, shall endeavor to shape legislation so as to secure the best results for the whole people, and shall utilize every organized influence in local, state and national affairs and elections. Its work shall be done with dignity becoming a great profession and with that wisdom which will make effective its work and influence. It shall have authority to be heard before the entire Association upon questions of great concern at such times as may be arranged during the annual session.

Sec. 4. The Committee on Arrangements shall consist of the component society in the territory in which the annual session is to be held. It shall by committees of its own selection, provide suitable accommodations for the meeting-places of the Association and of the House of Delegates, and of their respective committees and shall have general charge of all arrangements. Its Chairman shall report an outline of the arrangements to the Secretary for publication in the program and shall make additional announcements during the session as occasion may require.

Sec. 5. The Medico-Legal Committee shall consist of three members, one of whom, the Chairman, shall be elected by the Council for five years, and the Secretary and Treasurer shall be the other two members *ex-officio.* This committee shall select and fix the compensation for an attorney, who shall act as General Counsel, and if required, additional local counsel. The Association through this Committee shall defend its members who are in good standing against unjust suits for malpractice.

### Chapter IX.—Assessments and Expenditures

Section 1. The assessment of five dollars per capita on the membership of the component societies is hereby made the annual dues of this Association. The Secretary of each county society shall forward its assessment together with its roster of all officers and members, lists of delegates, and list of non-official physicians of the county to the Secretary of this Association on the first day of January in each year.

Sec. 2. Any county society which fails to pay its assessments, or make the report required, on or before the first day of April in each year, shall be held as suspended, and none of its members or delegates shall be permitted to participate in any of the business or proceedings of the Association or of the House of Delegates until such requirements have been met.

Sec. 3. All motions or resolutions appropriating money shall specify a definite amount, or so much thereof as may be necessary for the purpose indicated, and must be approved by the Council and House of Delegates.

### Chapter X.—Rules of Conduct

The Principles set forth in the Principles of Ethics of the American Medical Association shall govern the conduct of members in their relation to each other and to the public.

### Chapter XI.—Rules of Order

The deliberations of this Association shall be governed by parliamentary usage as contained in Roberts Rules of Order, unless otherwise determined by a vote of its respective bodies.

### Chapter XII.—County Societies

Section 1. All county societies now in affiliation with the State Association or those that may hereafter be organized in this State, which have adopted principles of organization not in conflict with this Constitution and By-Laws shall upon application to the House of Delegates, receive a charter from and become a component part of this Association.

Sec. 2. As rapidly as can be done after the adoption of this Constitution and By-Laws, a medical society shall be organized in every county in the State in which no component society exists, and charters shall be issued thereto.

Sec. 3. Charters shall be issued only upon approval of the House of Delegates and shall be signed by the President and Secretary of this Association. The House of Delegates shall have authority to revoke the charter of any component county society whose actions are in conflict with the letter or spirit of this Constitution and By-Laws.

Sec. 4. Only one component medical society shall be chartered in any county. Where more than one county society exists friendly overtures and concessions shall be made with the aid of the Councilor of the District if necessary and all of the members brought into one organization. In case of failure to unite, an appeal may be made to the Council, which shall decide what action shall be taken.

Sec. 5. Each county society shall judge of the qualifications of its own members, but as such societies are the only portals to this Association, every reputable and legally registered physician who is practicing, or who will agree to practice non-sectarian medicine shall be entitled to membership. Before a charter is issued to any county society, full and ample notice and opportunity shall be given to every physician in the county to become a member.

Sec. 6. Any physician who may feel aggrieved by the action of the society of the county in refusing him membership, or in suspending or expelling him, shall have the right to appeal to the Council, which, upon a majority vote may permit him to become a member of an adjacent county society.

Sec. 7. In hearing appeals, the Council may admit oral or written evidence as in its judgment will best and most fairly present the facts, but in case of every appeal, both as a board and as individual councilors in district and county work, effort at conciliation and compromise shall precede all such hearings.

Sec. 8. When a member in good standing in a component society moves to another county in the State, his name, upon request, shall be transferred without cost to the roster of the county society into whose jurisdiction he moves.

Sec. 9. A physician living in or near a county line may hold membership in that county most convenient for him to attend, on permission of the society in whose jurisdiction he resides.

Sec. 10. Each county society shall have general direction of the affairs of the profession in the county, and its influence shall be constantly exerted for bettering the scientific, moral and material conditions of every physician in the county; and systematic efforts shall be made by each member, and by the society as a whole, to increase the membership until it embraces every qualified physician in the county.

Sec. 11. Frequent meetings shall be encouraged, and the most attractive programs arranged that are possible. The younger members shall be especially encouraged to do post-graduate and original research work, and to give the society the first benefit of such labors. Official position and other preferences shall be unstintingly given to such members.

Sec. 12. At the time of the annual election of officers each county society shall elect a delegate or delegates to represent it in the House of Delegates of this Association in the proportion of one delegate to each twenty-five members or major fraction thereof, and the secretary of the society shall send a list of such delegates to the Secretary of this Association at least sixty days before the Annual Session.

Sec. 13. The Secretary of each county society shall keep a roster of its members and a list of the non-affiliated registered physicians of the county, in which shall be shown the full name, address, college and date of graduation, date of license to practice in this State, and such other information as may be deemed necessary. He shall furnish an official report containing such information, upon blanks supplied him for the purpose, to the Secretary of this Association, on the first day of January of each year, or as soon thereafter as possible, and at the same time that the dues accruing from the annual assessment are sent in. In keeping such roster the Secretary shall note any changes in the personnel of the profession by death, or by removal to or from the county, and in making his annual report he shall be certain to account for every physician who has lived in the county during the year.

Sec. 14. The Secretary of each county society shall report to the Kentucky Medical Journal full minutes of each meeting and forward to it all scientific papers and discussions which the society shall consider worthy of publication.

### CHAPTER XII.—AMENDMENTS

These By-Laws may be amended by any Annual Session by a two-thirds vote of all the delegates present at that session, after the amendment has been laid on the table for one day.

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## CONSTITUTION AND BY-LAWS FOR COUNTY SOCIETIES

Prepared by the Committee on Organization
of the American Medical Association
of which the late Dr. J. N. Mc-
Cormack was Chairman

### ARTICLE I.—NAME AND TITLE OF THE SOCIETY

The name and title of this organization shall be the ———————— County Medical Society.

### ARTICLE II.—PURPOSE OF THE SOCIETY

The purpose of this society shall be to bring into one oganization the physicians of ———————— County, so that by frequent meetings and full and frank interchange of views they may secure such intelligent unity and harmony in every phase of their labor as will elevate and make effective the opinions of the profession in all scientific, legislative, public health, material and social affairs, to the end that the profession may receive that respect and support within its own ranks and from the community to which its honorable history and great achievements entitle it; and with other county societies to form the ———————— State Medical Association, and through it, with other state associations, to form and maintain the American Medical Association.

### Article III.—Eligibility

Every legally registered physician residing and practicing in ———————— County who is of good moral and professional standing and who does not support or practice, or claim to practice, any exclusive system of medicine, shall be eligible for membership.

### Article IV.—Meetings

Regular meetings shall be held at such time and place as may be determined by the Society.

Special meetings may be called by the President and shall be called on a written request of five members. A call for a special meeting shall state the object of such meeting, at which no business except that stated in the call shall be transacted.

### Article V.—Officers

The officers of this Society shall consist of a President, Vice-President, Secretary, Treasurer, Delegates and Board of three Censors. These officers, except the Delegates and Board of Censors, shall be elected annually. Delegates shall be elected for two years, and in accordance with the constitution and by-laws of the state association. One member of the Board of Censors shall be elected each year to serve for three years, provided that at the first election after the adoption of this constitution one member of the Board shall be elected for one year, one for two, and one for three years.

### Article VI.—Funds and Expenses

Funds for meeting the expenses of the Society shall be raised by annual dues, special assessments and voluntary contributions. Funds may be appropriated by vote of the Society for such purposes as will promote its welfare and that of the profession.

### Article VII.—Charter

The Society shall apply to the council of the state association for a charter at the meeting at which this constitution and by-laws is adopted, or as soon thereafter as practicable, and the charter shall be kept by the Secretary.

### Article VIII.—Incorporation

The Society shall have authority to appoint a Board of Trustees and to provide for articles of incorporation whenever it may deem this necessary.

### Article IX.—Amendments

The Society may amend any article of this constitution by a two-thirds vote of its members at any regular meeting, provided that such amendment or amendments are not in conflict with the laws and regulations of the state association; provided, also, that such amendment shall have been read in open session at a previous regular meeting and shall have been sent by mail to each member ten days in advance of the meeting at which final action is to be taken.

## BY-LAWS

### Chapter I.—Membership

Section 1. The Society shall judge of the qualification of its members, but as it is the only door to the state medical association and to the American Medical Association for physicians within its jurisdiction, every reputed and legally qualified physician of ————————County who does not support or practice or claim to practice, sectarian medicine shall be eligible to membership.

Sec. 2. A candidate for membership shall make application in writing and shall state his age, his college and date of graduation, the place in which he has practiced, and the date of registration in this state. The application must be accompanied by the admission fee and must be endorsed by two members of this Society. It shall be referred to the Board of Censors, who shall inquire into the standing of the applicant, assure themselves that he or she is duly registered according to the laws of the state, and report at the next regular meeting of this Society. Election shall be by ballot, and two-thirds of the votes of the members present and voting shall be necessary to elect. The application shall be returned to the Secretary, who shall file it for future reference. Applications for membership from rejected candidates shall not be received within six months of such rejection.

Sec. 3. A physician, accompanying his application with a transfer card from another component county society of this or any state within 60 days of the issuance of said card, shall be admitted without fee on a majority vote of the members present, and without the application being referred to the Board of Censors. Such application may be acted on at the meeting at which it is presented on the vote of three-fourths of the members present, otherwise it shall lie over until the next regular meeting. No annual dues for the current year shall be charged against such members provided the same have been paid to the Society from which the applicant comes.

Sec. 4. A physician residing in an immediately adjoining county may become a member of this Society in like manner and on the same terms as a physician living in this county, on permission of the county society of the county in which the applicant lives.

Sec. 5. A member in good standing who is free from all indebtedness to this Society, and against whom no charges are pending wishing to withdraw, shall be granted a transfer card. This card shall state the date the member associated himself with the Society, the date of issuance of the card, and shall be signed by the President and Secretary. It shall be accompanied with a copy of the application presented at the time the member joined the Society, for information to the Society to which the member desires to attach himself.

Sec. 6. All members shall be equally privileged to attend all meetings and take part in all proceedings, and shall be eligible to any office or honor within the gift of the Society so long as they conform to this constitution and by-laws, including the payment of dues. A member who is under sentence of suspension or expulsion shall not be permitted to take part in any of the proceedings or be eligible to any office until relieved of such disability. And, provided further, that none of the privileges of membership shall be extended to any person not a member of this Society except on a majority vote of the Society in regular meeting.

Sec. 7. A member who is guilty of a criminal offense or of gross misconduct either as a physician or as a citizen, or who violates any of the provisions of this constitution and by-laws, shall be liable to censure, suspension or expulsion. Charges against a member must be made in writing and be delivered to the Secretary, who shall immediately furnish a copy to the accused and to the Chairman of the Board of Censors. The Board of Censors shall investigate the charges on their merits, but no action shall be taken by the Board within ten days of the presentation of the charges to the accused, nor before giving the accused and accusers ample opportunity to be heard. The board shall report (1) that the charges are not sustained; or (2) that the charges are sustained and that the accused be (a) censured; (b) suspended for a definite time, or (c) expelled. Censure or suspension shall require a two-thirds vote of the members present and voting and a three-fourths vote of those present and voting shall be required to expel a member. No action shall be taken by the Secretary in such cases until at least six weeks have elapsed since the filing of the charges. A member suspended for a definite time shall be reinstated at the expiration of the time.

Sec. 8. Kindly efforts in the interest of peace, conciliation or reformation, so far as possible and expedient, shall precede the filing of formal charges affecting the character or standing of a member, and the accused shall have opportunity to be heard in his own defense in all trials and proceedings of this nature.

Sec. 9. Members expelled from this Society for any cause shall be eligible for membership after one year from date of expulsion and on the same terms and in like manner as original applicants.

### Chapter II.—Powers and Duties

Section 1. This Society shall have general direction of the affairs of the medical profession of the county, and its influence shall be constantly exerted to better the scientific, material and social condition of every physician within its jurisdiction. Systematic efforts shall be made by each member, and by the Society as a whole, to increase the membership until it embraces every reputable physician in the county.

Sec. 2. A meeting shall be held at——— p. m. on the ————————in each month (or oftener), ——— members shall constitute a quorum.

The officers and committee on program shall profit by experience and by example of other similiar societies, and strive to arrange for the most attractive and successful proceedings for each meeting. Crisp papers and discussions and reports of cases shall be arranged for and encouraged, and tedious and profitless proceedings and discussions shall be avoided as far as practicable.

Sec. 3. Agreements and schedules for fees shall not be made by this Society, but at least one meeting during each year shall be set apart for a discussion of the business affairs of the profession of the county, with the view of adopting the best methods for the guidance of all. In all proper ways the public shall be taught that business methods and prompt collections are essential to the equipment of the modern physician and surgeon and that it suffers even more than the profession when this is not recognized.

Sec. 4. This Society shall endeavor to educate its members to the belief that the physician should be a leader in his community, in character, in learning, in dignified and manly bearing, and in courteous and open treatment of his brother physicians, to the end that the profession may occupy that place in its own and the public estimation to which it is entitled.

### Chapter III.—Officers

Section 1. The Officers of the Society shall be elected at the December meeting in each year, which shall be known as the annual meeting. Nominations shall be made by informal ballot, and all elections be by ballot. The vote of the majority of all the members present shall be necessary to an election.

Sec. 2. The President shall preside at the meetings of the Society, and perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession in the county during the year, and it shall be the pride and ambition to leave it in better condition as regards both scientific attainments and harmony than at the beginning of his term of office.

Sec. 3. The Vice-President shall assist the President in the performance of his duties, shall preside in his absence, and on his death, resignation or removal from the county, shall succeed to the presidency.

Sec. 4. The Secretary shall record the minutes of the meetings and receive and care for all records and papers belonging to the Society, including its charter. He shall notify each member of the Society as to the time and place of each meeting, and, whenever possible, give the program for the meeting. He shall keep account of and promptly turn over to the Treasurer all funds of the Society which may come into his hands. He shall make and keep a list of the members of this Society in good standing, noting of each his correct name, address, place and date of graduation, and the date of the certificate entitling him to practice medicine in this state; and in a separate list he shall note the same facts in regard to each legally qualified physician in this county not a member of this Society. It shall be his duty to send a copy of such lists, on blank forms furnished him for that purpose, to the Secretary of the state association at such times as may be designated by the state association. In making such lists he shall endeavor to account for each physician who has moved into or out of the county during the year, stating when possible, both his present and past address. At the same time, and with his report of such lists of members and physicians, he shall transmit to the state association his order on the Treasurer for the annual dues of the Society.

Sec. 5. The Treasurer shall receive all dues and money belonging to the Society from the hands of the Secretary or members, and shall pay out the same only on the written orders of the President, countersigned by the Secretary.

Sec. 6. The Delegates shall attend and faithfully represent the members of this Society and the profession of this county in the House of Delegates of the state association, and shall make a report of the proceedings of that body to this Society at the earliest opportunity.

### Chapter IV.—Committees

Section 1. There shall be a Board of Censors as provided in the constitution, a Standing Committee on Program and Scientific Work, a Committee on Public Health and Legislation, and such special committees as may from time to time be deemed necessary.

Sec. 2. Board of Censors. This Board shall examine and report on the qualification of applicants for membership subjecting each applicant to such examination as it may deem necessary. It shall investigate charges preferred against a member, and report its conclusions and recommendations to the Society. In case of the absence of a member of the Board, the President may appoint some member to fill the vacancy. The senior member of the Board in point of service shall be Chairman of the Board.

Sec. 3. Committee on Program and Scientific Work. This Committee shall consist of the President, Vice-President and Secretary. It shall be the duty to promote the scientific and social functions of the Society by arranging attractive programs for each meeting and by urging each member to take part in the scientific work. It shall stimulate fraternalism and good feeling among the members in every way possible. (Provisions should be made in this Section for annual luncheons, dinners, etc., which the Committee believes to be an excellent way to bring members together. Such occasions should be made as inexpensive as possible).

Sec. 4. Committee on Public Health and Legislation. This committee shall consist of three members who shall be appointed annually by the President. It shall be its duty to enforce and support the sanitary and medical laws of the state in this county, to co-operate with the Committee on Public Policy and Legislation of the state association in all matters pertaining to legislation, and to prosecute quacks and medical pretenders in this county.

### Chapter V.—Funds and Expenses

Section 1. The admission fee, which must accompany the application, shall be $——— and shall include the annual dues for the fiscal year. The admission fee shall be returned if the applicant is not accepted.

Sec. 2. The annual dues shall be $——— and shall be payable on January 1 of each year. Any member who shall fail to pay his annual dues by April 1 shall be held as suspended without action on the part of the Society. A member suspended for non-payment of dues shall be restored to full membership on payment of all indebtedness. Members more than one year in arrears shall be dropped from the roll of members.

Sec. 3. The fiscal year of this Society shall be from January to December, inclusive.

### Chapter VI.—Order of Business

The order of business shall be as follows:

1. Call to order by the President.
2. Reading of the minutes of last meeting.
3. Clinical cases.
4. Papers and discussions.

5. Unfinished business.
6. Miscellaneous business.
7. Announcements.
8. Adjournment.

### CHAPTER VII.—RULES OF ORDER

The deliberations of this Society shall be governed by parliamentary usage as contained in Roberts' Rules of Order, unless otherwise determined by vote.

### CHAPTER VIII.—THE PRINCIPLES OF MEDICAL ETHICS

The Principles of Medical Ethics of the American Medical Association shall govern this Society.

### CHAPTER IX.—AMENDMENTS

These by-laws may be amended at any regular meeting by a two-thirds vote of, provided that such amendment has been read in open session at the preceding regular meeting and a copy of the same has been sent to each member by the Secretary ten days in advance of the meeting at which final action is to be taken.

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## REPORT OF BUSINESS MANAGER

To the House of Delegates:

All the material from members of the Association received during the year has been published. This includes original articles, district society reports, special articles, articles and discussions read before the State, County and District Societies. Verbatim proceedings of the House of Delegates and Scientific Section, and full proceedings of the Eye, Ear, Nose and Throat Section, Forum, News Items and Index.

The following figures give a detail summary of the JOURNAL for the year:

| | 1932 | 1933 |
|---|---|---|
| Editorials | 68 | 54 |
| Scientific Editorials | 5 | 7 |
| Official Announcements | 17 | 11 |
| Original Articles | 181 | 115 |
| County Society Reports | 64 | 64 |
| Pages of Reading Matter | 767 | 599 |
| Pages of Advertisements | 328 | 286 |

### OUR ADVERTISERS

The income from the JOURNAL has been reduced because many of our old and reliable advertisers have either merged with other firms or have gone out of business and many have curtailed their space or advertising every other month.

To continue the policy of publishing every article received, we must keep the advertisers we now have and specify their products when ever practical and take an interest in our advertising pages by reading them and expressing an opinion to our advertisers upon their display whether the article is purchased or not.

Our Commercial Exhibitors this year are exceptionally good and have been selected with great care. They pay the expenses of the meeting and are commericial post gradute courses in new drugs, serums, books and instruments.

L. H. SOUTH, M. D.

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## AUDITOR'S REPORT

To the Council of the Kentucky State Medical Association:

Gentlemen:

Upon request, I have made a complete audit of the books and accounts of your Secretary, Dr. A. T. McCormack, and your Treasurer, Dr. M. McDowell, for the period beginning September 1, 1932 and ending September 1, 1933.

All receipts were properly accounted for and all disbursements were charged to the proper account being in the form of a voucher check signed by the proper officers and bearing the endorsement of the payee.

The various exhibits herewith submitted set forth in detail the financial transactions from every angle and show the true condition of your affairs at this date. I was unable to find an error in your records.

I have also examined the records of Mrs. Edna R. Krieger, Treasurer, of the Woman's Auxiliary and Business Manager of The Quarterly, and find them correct as set forth in the schedules herewith submitted.

Respectfully,

B. P. EUBANK.

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Reconciliation of Treasurer's accounts for period September 1, 1932, to September 1, 1933, viz.:

| | | | |
|---|---|---|---|
| Balance on hand at last report | | $9,591.64 | |
| Less Vouchers then outstanding | | 2,138.46 | |
| Balance agreeing with Secretary's last report | | | $ 7,453,18 |
| Amount received from Secretary for period | | $13,014.42 | |
| Amount received from interest on Bonds and Interest | | 425.76 | 13,440.18 |
| Total | | | $20,893.36 |
| DISBURSEMENTS | | | |
| Expense | | $15,042.50 | |
| Balance September 1, 1933, Checking Account | $ 5,425.10 | | |
| Additional Balance September 1. 1933 in Savings Account | 425.76 | 5,850.86 | $20,893.36 |

Balance September 1, 1933, Checking Account....$5,425.10

Reconcilement:

| | |
|---|---|
| Balance in the National Bank of Cynthiana, Cynthiana, Kentucky, Treasurer's Account | $ 7,883.09 |
| Vouchers Outstanding, viz: | |
| No. 130 July 31, 1930, Louis Vissman | $20.10 |
| No. 91 Apr. 29, 1933, Evan E. Smith | 7.50 |
| No. 94 Apr. 29, 1933, Mayme Sullivan | 3.22 |
| No. 96 Apr. 29, 1933, Tye, Siler, Gillis, & Siler, Attys | 186.95 |
| No. 101 May 31, 1933, L. R. Curtis, Atty. | 100.00 |

| | | |
|---|---|---|
| No. 107, June 30, 1933, L. H. South, M. D. | 90.00 | |
| No. 117 July 1, 1933, Woman's Auxiliary to the Kentucky State Medical Association | 16.88 | |
| No. 117-A July 1, 1933, Louisville Postmaster | 432.16 | |
| No. 118 July 31, 1933, A. T. McCormack, M. D. | 135.00 | |
| No. 119 July 31, 1933, L. H. South, M. D. | 90.00 | |
| No. 120 July 31, 1933, J. F. Blackerby | 90.00 | |
| No. 121 July 31, 1933, Elva Grant | 75.00 | |
| No. 122 July 31, 1933, L. R. Curtis, Atty | 150.00 | |
| No. 123 July 31, 1933, Mayme Sullivan | 1.85 | |
| No. 124 July 31, 1933, Times-Journal Pub. Co. | 300.00 | |
| No. 124-A July 31, 1933 Harvey G. Smith | 69.33 | |
| No. 125 Aug. 31, 1933, A. T. McCormack, M. D. | 135.00 | |
| No. 126 Aug. 31, 1933, L. H. South, M. D. | 90.00 | |
| No. 127 Aug. 31, 1933, J. F. Blackerby | 90.00 | |
| No. 128 Aug. 31, 1933, Elva Grant | 75.00 | |
| No. 129 Aug. 31, 1933, Times-Journal Pub. Co. | 500.00 | $ 2,457.99 |

| | |
|---|---|
| Balance agreeing with Secretary | $5,425.10 |

Vouchers Nos. 118, 119, 120, 121 122, 123, 124, 125, 126, 127, 128 aud 129 are in the hands of the Secretary to be delivered.

### STATEMENT OF ASSETS

| | | | |
|---|---|---|---|
| Balance in the National Bank of Cynthiana, Cynthiana, Kentucky, to the credit of the Kentucky State Medical Association, M. McDowell, M. D., Treasurer (Checking Account) | | $ 7,883.09 | |
| Less Vouchers Outstanding | | 2,457.99 | |
| | | $ 5,425.10 | |
| Savings Account | $6,824.28 | | |
| Interest on Bonds | 219.32 | | |
| Interest on Savings | 206.44 | 7,250.04 | |
| Kentucky State Medical Ass'n. Student Loan Fund Account | 21.22 | | |
| Interest on Loan Fund | .62 | 21.84 | |
| Total Amount in Bank | | | $12,696.98 |
| Louisville Title Bonds, Nos. 3, 5. 8, 13 and 40, @ $1,000.00 each in hands of Treasurer, deposited in the National Bank of Cynthiana, Cynthiana, Kentucky | | $5,000.00, | |
| Office Furniture, etc. (See Exhibit "D") | | 805.65 | 5,805.65 |
| TOTAL ASSETS | | | $18,502.63 |

## EXHIBIT " A"

### RECEIPTS

| | | | |
|---|---|---|---|
| Dues from County Societies | | $ 7,694.58 | |
| Income of Journal (Exclusive of Investments, etc.) | | 5,320.59 | |
| Student Loan Fund | | 21.84 | |
| Interest on Saving Account | $206.44 | | |
| Interest on Louisville Title Bonds Nos. 3, 5, 8, 13 and 40 | 219.32 | 425.76 | |
| Total Receipts | | $13,462.77 | |
| Balance on hand September 1, 1932, Checking Account | | 7,453.18 | |
| Balance on hand September 1, 1932, Savings Account | | 6,824.28 | |
| Total | | | $27,740.23 |

### DISBURSEMENTS

| | | | |
|---|---|---|---|
| **State Medical Association:** | | | |
| President's Sundries | | $ 81.24 | |
| Secretary's Salary | | 1,620.00 | |
| Secretary's Stenographer's Salary | | 900.00 | |
| Secretary's Sundries | | 324.25 | |
| Treasurer's Bond and Expense | | 12.50 | |
| Officers' Councilors' and Committee Expenses | | 98.35 | |
| Committee on Public Policy, Expense | | 1,080.00 | |
| Practice Act, Medical Enforcement | | 300.00 | |
| Attorneys' Fees, Medico-Legal Committeo | | 800.00 | |
| Medical Economics | | 937.50 | |
| Costs and Expeuses, Medico-Legal Committee | | 59.95 | |
| Postage and Stamped Envelopes | | 575.27 | |
| Association Sundries | | 137.68 | |
| Louisville Meeting Expense | | 1,057.85 | |
| Murray Meeting Expense | | 27.96 | |
| Eye, Ear, Nose and Throat Section Expense | | 89.33 | |
| Telephone and Telegrams | | 8.25 | |
| Tax: | $ .24<br>2.62 | 2.86 | |
| Total State Medical Association | | | $8,112.99 |
| **Kentucky Medical Journal:** | | | |
| Business Manager's Salary | | $1,080.00 | |
| Business Manager's Sundries | | 45.08 | |
| Joural Advertisement Collections Paid Woman's Auxiliary, Kentucky State Medical Association | | 16.88 | |
| Journal Printing | | 5,132.82 | |
| Journal Postage | | 200.00 | |
| Journal Express and Freight | | 33.08 | |
| Journal Sundries | | 421.89 | |
| Tax | | .51 | |
| Total Journal | | | $ 6,930.26 |
| Grand Total | | | $15,043.25 |
| Balance on hand this date Checking Account | $5,425.10 | | |
| Balance on hand this date, Savings Account | 7,250.04 | | |
| Balanco on hand Student Loan Fund | 21.84 | | $12,696.98 |
| Total | | | $27,740.23 |

## EXHIBIT "B"

### STUDENT LOAN FUND

| | | | |
|---|---|---|---|
| 1930 Sept. 1 | Total Receipts on hand | $ 264.00 | |
| 1931 Jan. 1 | Interest | 5.28 | |
| | Total | $269.28 | |
| Feb. 10 | Loan for Medical Education | 250.00 | |
| Sept. 1 | Balance on hand | 19.28 | |
| 1932 July 5 | Interest | 1.94 | |
| | Balance on hand | 21.22 | |
| 1933 July 5 | Interest | .62 | |
| Sept. 1 | Balance on hand | | $ 21.84 |

## EXHIBIT "C"

Detailed list of receipts from County Societies from September 1932 to September 1933, compared with incomes of same period last year:

| | 1932 | 1933 |
|---|---|---|
| Adair | $ 35.00 | $ 25.00 |
| Allen | 40.00 | 35.00 |
| Anderson | 45.00 | 45.00 |
| Ballard | 30.00 | 30.00 |
| Barren | 70.00 | 80.00 |
| Bath | 45.00 | 25.00 |
| Bell | 100.00 | 105.00 |
| Booue | 5.00 | 10.00 |
| Bourbon | 80.00 | 75.00 |
| Boyd | 215.00 | 180.00 |
| Boyle | 55.00 | 55.00 |
| Bracken | 40.00 | 25.00 |
| Breathitt | 35.00 | 45.00 |
| Breckenridge | 30.00 | 25.00 |
| Bullitt | 30.00 | 20.00 |
| Butler | 15.00 | 10.00 |
| Caldwell | 45.00 | 45.00 |
| Calloway | 75.00 | 80.00 |
| Campbell-Kenton | 580.00 | 465.00 |
| Carlisle | 35.00 | 30.00 |
| Carroll | 40.00 | 30.00 |
| Carter | 35.00 | 27.50 |
| Casey | 15.00 | 20.00 |
| Christian | 155.00 | 140.00 |
| Clark | 90.00 | 90.00 |
| Clay | 30.00 | 25.00 |
| Clinton | 15.00 | 15.00 |
| Crittenden | 20.00 | 30.00 |
| Cumberland | 30.00 | 30.00 |
| Daviess | 210.00 | 155.00 |
| Elliott | 5.00 | .... |
| Estill | 25.00 | 25.00 |
| Fayette | 530.00 | 475.00 |
| Fleming | 60.00 | 50.00 |
| Floyd | 40.00 | 20.00 |

| | | |
|---|---|---|
| Franklin | 75.00 | 80.00 |
| Fulton | 40.00 | 50.00 |
| Gallatin | 15.00 | 15.00 |
| Garrard | 30.00 | 30.00 |
| Grant | 85.00 | 55.00 |
| Graves | 105.00 | 95.00 |
| Grayson | 30.00 | 48.33 |
| Green | 25.00 | 25.00 |
| Greenup | 55.00 | 45.00 |
| Hancock | .... | 50.00 |
| Hardin | 110.00 | 90.00 |
| Harlan | 225.00 | 185.00 |
| Harrison | 80.00 | 80.00 |
| Hart | 45.00 | 25.00 |
| Henderson | 80.00 | 45.00 |
| Henry | 25.00 | 30.00 |
| Hickman | 35.00 | 35.00 |
| Hopkins | 95.00 | 70.00 |
| Jackson | 10.00 | .... |
| Jefferson | 1,923.50 | 1,812.50 |
| Jessamine | 60.00 | 15.00 |
| Johnson | 35.00 | 55.00 |
| Knott | 10.00 | .... |
| Knox | 50.00 | 5.00 |
| Larue | 40.00 | 20.00 |
| Laurel | 40.00 | 45.00 |
| Lawrence | 55.00 | 36.25 |
| Lee | 10.00 | .... |
| Leslie | 5.00 | 5.00 |
| Letcher | 115.00 | 55.00 |
| Lewis | 20.00 | 20.00 |
| Lincoln | 45.00 | 40.00 |
| Livingston | 20.00 | 10.00 |
| Logan | 60.00 | 60.00 |
| Lyon | 20.00 | 25.00 |
| McCracken | 225.00 | 205.00 |
| McCreary | 50.00 | 20.00 |
| McLean | 30.00 | 40.00 |
| Madison | 150.00 | 150.00 |
| Magoffin | 5.00 | 5.00 |
| Marion | 55.00 | 45.00 |
| Marshall | 45.00 | 35.00 |
| Martin | 10.00 | .... |
| Mason | 100.00 | 95.00 |
| Meade | 5.00 | 5.00 |
| Menifee | .... | .... |
| Mercer | 55.00 | 50.00 |
| Metcalfe | 25.00 | 30.00 |
| Monroe | 15.00 | 15.00 |
| Montgomery | 65.00 | 45.00 |
| Morgan | 10.00 | 10.00 |
| Muhlenberg | 80.00 | 80.00 |
| Nelson | 50.00 | 50.00 |
| Nicholas | 50.00 | 35.00 |
| Ohio | 30.00 | 5.00 |
| Oldham | 30.00 | 15.00 |
| Owen | 20.00 | 20.00 |
| Owsley | 20.00 | 10.00 |
| Pendleton | 30.00 | 25.00 |
| Perry | 170.00 | 175.00 |
| Pike | 105.00 | 55.00 |
| Powell | .... | 15.00 |
| Pulaski | 80.00 | 70.00 |
| Robertson | 10.00 | 5.00 |
| Rockcastle | 45.00 | 25.00 |
| Rowan | 10.00 | 10.00 |
| Russell | 20.00 | 20.00 |
| Scott | 65.00 | 60.00 |
| Shelby | 85.00 | 50.00 |
| Simpson | 55.00 | 45.00 |
| Spencer | .... | .... |
| Taylor | 40.00 | 30.00 |
| Todd | 35.00 | 25.00 |
| Trigg | 15.00 | 5.00 |
| Trimble | .... | .... |
| Union | 20.00 | 10.00 |
| Warren-Edmonson | 135.00 | 100.00 |
| Washington | 35.00 | 40.00 |
| Wayne | 20.00 | ..... |
| Webster | 20.00 | 35.00 |
| Whitley | 80.00 | 60.00 |
| Wolfe | 5.00 | 10.00 |
| Woodford | 40.00 | 30.00 |
| Total | $8,823.50 | $7,694.58 |

## EXHIBIT "D"

### INVOICE OF THE PROPERTY OF THE ASSOCIATION
September 1, 1933

| | | |
|---|---|---|
| 1 Filing Cabinet | | $ 64.75 |
| Rubber Stamps | | 9.00 |
| Guide Cards | | 5.00 |
| 1 Electric Fan | | 18.00 |
| 1 Globe Safe with Fixtures | | 130.00 |
| 2 Cabinets for Addressograph, 36 drawers each @ 45.00 | | 90.00 |
| 2 Cabinets for Addressograph, 18 drawers each. @ 30.00 | | 60.00 |
| 1 Cabinet for Addressograph, 9 drawers | | 15.00 |
| 64 Drawers @ 95c each | | 60.80 |
| Total | | $452.55 |
| 95% Reduction for Depreciation | | 429.93 |
| Total Old Property | | $ 22.62 |
| 30 Bound Volumes Kentucky Medical Journals 1903-32 | | 292.75 |
| 1 Underwood Typewriter | 83.03 | |
| Less 30. Depressiation | 24.91 | 58.12 |
| 5,000 No. 5 2-cent envelopes, plain, @ 21.96 per M | | 109.80 |
| 5,000 No. 5 3-cent envelopes, plain, @ 31.96 per M | | 159.80 |
| 2,500 No. 8 2-cent envelopes, plain, @ 22.88 per M | | 57.20 |
| 2,500 No. 8 3-cent envelopes, plain, @ 32.88 per M | | 82.20 |
| 1,000 No. 9 2-cent envelopes, Ky. State Medical Ass'n. @ 23.16 per M | | 23.16 |
| Total | | $805.65 |

## EXHIBIT "F"

Collections by Secretary on account of Kentucky State Medical Association, corresponding with checks, deposit slips and receipts filed.

| | |
|---|---|
| 1932 | |
| Oct. 1—To collections to date | $ 115.00 |
| Nov. 1—To collections to date | 146.25 |
| Dec. 1—To collections to date | 20.00 |
| 1933 | |
| Jan. 1—To collections to date | 35.00 |
| Feb. 1—To collections to date | 985.00 |
| March 1—To collections to date | 1,390.00 |
| April 1—To collections to date | 495.00 |
| May 1—To collections to date | 3,477.50 |
| June 1—To collections to date | 600.00 |
| July 1—To collections to date | 315.83 |
| Aug. 1—To collections to date | 114.76 |
| | $7,694.34 |
| Tax on Checks | .24 |
| Total for Year | $7,694.58 |

## EXHIBIT "G"

Collections by Editor on account of the Journal, corresponding with checks, deposit slips and receipts filed.

| | |
|---|---|
| 1932 | |
| Oct. 1—To collections to date | $ 904.12 |
| Nov. 1—To collections to date | 703.45 |
| Dec. 1—To collections to date | 460.34 |
| 1933 | |
| Jan. 1—To collections to date | 311.06 |
| Feb. 1—To collections to date | 654.58 |
| March 1—To collections to date | 516.22 |
| April 1—To collections to date | 432.90 |
| May 1—To collections to date | 510.98 |
| June 1—To collections to date | 366.93 |
| July 1—To collections to date | 371.51 |
| Aug. 1—To collections to date | 87.99 |
| | $5,320.08 |
| Tax on Checks | .51 |
| Total for Year | $5,320.59 |

## EXHIBIT "E"

Secretary's Monthly Balance Sheet, Agreeing with Books.

| | Expenses | Collections | Balance |
|---|---|---|---|
| 1932 | | | |
| Sept. 1 Balance on hand | | | $7,453.18 |
| Oct. 1 | $ 1,371.01 | $ 1,019.12 | $ 7,101.29 |
| Nov. 1 | 1,360.82 | 849.70 | 6,590.17 |
| Dec. 1 | 2,310.66 | 480.34 | 4,759.85 |
| 1933 | | | |
| Jan. 1 | 1,166.43 | 346.06 | 3,939.48 |
| Feb. 1 | 1,889.90 | 1,639.58 | 3,689.16 |
| March 1 | 1,026.09 | 1,906.22 | 4,569.29 |
| April 1 | 894.28 | 927.90 | 4,602.91 |
| May 1 | 1,215.90 | 3,988.48 | 7,375.49 |
| June 1 | 862.28 | 966.93 | 7,480.14 |
| July 1 | 892.29 | 68734 | 7,275.19 |
| Aug. 1 | 1,360.22 | 202.75 | 6,117.72 |
| Sept. 1 | 690.00 | ....... | 5,427.72 |
| Tax on Checks | 2.62 | ....... | 5,425.10 |
| | $15,042.50 | $13,014.42 | |
| Balance on hand September 1, 1932 | | 7,453.18 | $20,467.60 |
| Balance on hand September 1, 1933 | | $5,425.10 | |
| Total Expenses | | 15,042.50 | $20,467.60 |

## EXHIBIT "H"

Total membership by Councilor Districts and by Counties for 1933 as compared to that of 1932.

First District—V. A. Stilley, Benton, Councilor.

| | 1932 | 1933 |
|---|---|---|
| Ballard | 6 | 6 |
| Caldwell | 8 | 9 |
| Calloway | 15 | 16 |
| Carlisle | 7 | 6 |
| Crittenden | 4 | 5 |
| Fulton | 8 | 10 |
| Graves | 21 | 19 |
| Hickman | 7 | 7 |
| Livingston | 4 | 2 |
| Lyon | 4 | 5 |
| Marshall | 9 | 9 |
| McCracken | 45 | 41 |
| Trigg | 1 | 1 |
| | 139 | 136 |

Second District—D. M. Griffith, Owensboro, Councilor.

| | 1932 | 1933 |
|---|---|---|
| Daviess | 38 | 34 |
| Hancock | .. | 5 |
| Henderson | 16 | 16 |
| Hopkins | 18 | 14 |
| McLean | 6 | 8 |
| Muhlenberg | 15 | 16 |
| Ohio | 6 | 4 |
| Union | 4 | 1 |
| Webster | 4 | 7 |
| | 107 | 106 |

Third District—C. C. Howard, Glasgow, Councilor.

| | 1932 | 1933 |
|---|---|---|
| Allen | 8 | 7 |
| Barren | 14 | 16 |
| Butler | 3 | 2 |
| Christian | 31 | 30 |
| Cumberland | 6 | 6 |
| Logan | 12 | 12 |
| Metcalfe | 5 | 5 |
| Monroe | 3 | 3 |
| Simpson | 10 | 9 |
| Todd | 7 | 5 |
| Warren-Edmonson | 24 | 19 |
| | 123 | 114 |

Fourth District—J. I. Greenwell, New Haven, Councilor.

| | 1932 | 1933 |
|---|---|---|
| Breckenridge | 6 | 5 |
| Bullitt | 5 | 4 |
| Grayson | 6 | 10 |
| Hardin | 22 | 18 |
| Hart | 8 | 5 |
| Larue | 7 | 4 |
| Meade | 1 | 1 |
| Nelson | 10 | 10 |
| Spencer | .. | .. |
| | 65 | 57 |

Fifth District—W. E. Gardner, Louisville, Councilor

| | 1932 | 1933 |
|---|---|---|
| Carroll | 8 | 6 |
| Franklin | 14 | 16 |
| Gallatin | 3 | 3 |
| Henry | 5 | 7 |
| Jefferson | 358 | 336 |
| Oldham | 6 | 4 |
| Owen | 4 | 4 |
| Shelby | 17 | 16 |
| Trimble | .. | .. |
| | 415 | 392 |

Sixth District—R. C. McChord, Lebanon, Councilor

| | 1932 | 1933 |
|---|---|---|
| Adair | 7 | 6 |
| Anderson | 9 | 9 |
| Boyle | 11 | 11 |
| Green | 5 | 5 |
| Marion | 11 | 9 |
| Mercer | 11 | 10 |
| Taylor | 8 | 6 |
| Washington | 7 | 8 |
| | 69 | 64 |

Seventh District—V. G. Kinnard, Lancaster, Councilor

| | 1932 | 1933 |
|---|---|---|
| Casey | 3 | 5 |
| Clinton | 3 | 3 |
| Garrard | 6 | 6 |
| Lincoln | 9 | 8 |
| McCreary | 10 | 4 |
| Pulaski | 14 | 14 |
| Rockcastle | 5 | 5 |
| Russell | 4 | 4 |
| Wayne | 3 | .. |
| | 57 | 49 |

Eighth District—C. W. Shaw, Alexandria, Councilor.

| | 1932 | 1933 |
|---|---|---|
| Boone | 1 | 2 |
| Bracken | 8 | 5 |
| Campbell-Kenton | 106 | 93 |
| Fleming | 12 | 11 |
| Grant | 12 | 11 |
| Harrison | 16 | 17 |
| Mason | 19 | 20 |
| Nicholas | 10 | 7 |
| Pendleton | 6 | 5 |
| Robertson | 2 | 1 |
| | 192 | 172 |

Ninth District—S. C. Smith, Ashland, Councilor.

| | 1932 | 1933 |
|---|---|---|
| Boyd | 41 | 35 |
| Carter | 7 | 6 |
| Elliott | 1 | .. |
| Floyd | 8 | 4 |
| Greenup | 10 | 9 |
| Johnson | 7 | 10 |
| Lawrence | 10 | 8 |
| Lewis | 4 | 4 |
| Magoffin | 1 | 1 |
| Martin | 1 | .. |
| Pike | 19 | 11 |
| | 109 | 88 |

Tenth District—C. A. Vance, Lexington, Councilor.

| | 1932 | 1933 |
|---|---|---|
| Bath | 8 | 5 |
| Bourbon | 15 | 15 |
| Breathitt | 7 | 7 |
| Clark | 17 | 17 |
| Estill | 5 | 5 |
| Fayette | 100 | 94 |
| Jassamine | 11 | 7 |
| Lee | 2 | .. |
| Madison | 29 | 30 |
| Menifee | .. | .. |
| Montgomery | 11 | 9 |
| Morgan | 2 | 2 |
| Powell | .. | 3 |
| Rowan | 2 | 2 |
| Scott | 13 | 13 |
| Wolfe | 1 | 2 |
| Woodford | 8 | 6 |
| | 231 | 217 |

Eleventh District—H. K. Buttermore, Liggett, Councilor

| | 1932 | 1933 |
|---|---|---|
| Bell | 20 | 21 |
| Clay | 6 | 5 |
| Harlan | 41 | 37 |
| Jackson | 1 | .. |
| Knott | .. | .. |
| Knox | 10 | 11 |
| Laurel | 8 | 9 |
| Leslie | 1 | 1 |
| Letcher | 18 | 18 |
| Owsley | 4 | 2 |
| Perry | 31 | 33 |
| Whitley | 16 | 11 |
| | 156 | 148 |

## EXHIBIT "I"

Detailed Statement of Disbursements of Marshall McDowell, M. D., Treasurer, Kentucky State Medical Association, each made on a Voucher Check signed by Philip F. Barbour, M. D., President, A. T. McCormack, M. D., Secretary, and himself, from September 1, 1932, to September 1, 1933.

1932

Sept. 30—Voucher Check No. 1 .................. $135.00
A. T. McCORMACK, M. D., Louisville
To September salary, Secretary
Approved by Council and Ordered Paid by House of Delegates

Sept. 30—Voucher Check No. 2 .................. $100.66
L. H. SOUTH, M. D Louisville
To September salary, Business Manager .......... 90.00
To expenses to Crab Orchard .......... 4.91
To expenses to Lebanon .......... 5.75

100.66

Approved by Council and Ordered Paid by House of Delegates

Sept. 30—Voucher Check No. 3 ........ $90.00
J. F. BLACKERBY, Louisville
To September services rendered Committee on Public Policy
Approved by Council and Ordered Paid by House of Delegates

Sept. 30—Voucher Check No. 4 ........ $75.00
ELVA GRANT, Louisville
To September salary, Bookkeeper
Approved by Council and Ordered Paid by House of Delegates

Sept. 30—Voucher Check No. 5 ........ $58.10
B. P. EUBANK, Bowling Green
To auditing books and accounts of A. T. McCormack, M. D., Secretary, and Marshall McDowell, M. D., Treasurer, and Miss Pauline C. Haley, Treasurer, Woman's Auxiliary, and Mrs. Edna B. Krieger, Business Manager of "The Quarterly for the period September 1, 1931, through August 31, 1932 ........ 50.80
To railroad fare Bowling Green to Louisville and return and meals ........ 8.10
58.10
Approved by Council and Ordered Paid by House of Delegates

Sept. 30—Voucher Check No. 6 ........ $35.00
AMERICAN MEDICAL ASSOCIATION, Chicago
To 2,500 inserts of Dr. Philip F. Barbour's picture for Annual Number, October 1932 Journal
Approved by Council and Ordered Paid by House of Delegates

Sept. 30—Voucher Check No. 7 ........ $2.40
E. H. ROEDERER, Louisville
To 12 ribbons for Annual Meeting
Approved by Council and Ordered Paid by House of Delegates

Sept. 30—Voucher Check No. 8 ........ $45.30
F. & V. MANUFACTURING CO., East Providence, R. I.
To 300 bangles, "Louisville 1932," @ 15c each ........ 45.00
To postage ........ .30
45.30
Approved by Council and Ordered Paid by House of Delegates

Sept. 30—Voucher Check No. 9 ........ $54.00
COURIER-JOURNAL JOB PRINTING COMPANY, Louisville
To 4 M Membership Cards for 1933 and 1934
Approved by Council and Ordered Paid by House of Delegates

Sept. 30—Voucher Check No. 10 ........ $1.94
MEFFERT EQUIPMENT COMPANY, Louisville
To 1 M 4x6 Record Cards ........ 1.75
To 2 No. 548 Index Books ........ .40 2.15
Less 10% ........ .21
1.94
Approved by Council and Ordered Paid by House of Delegates

Sept. 30—Voucher Check No. 10-A ........ $45.65
CHARLES A. VANCE, M. D., Lexington
To expense as Councilor, 10th District
Approved by Council and Ordered Paid by House of Delegates

Sept. 30—Voucher Check No. 11 ........ $17.52
LOUISVILLE POSTMASTER, Louisville
To postage on letters
Approved by Council and Ordered Paid by House of Delegates

Sept. 30—Voucher Check No. 12 ........ 12.34
BUSH KREBS, Louisville
To 3 Cuts ........ 11.34
To sawing electro in five parts ........ 1.00
12.34
Approved by Council and Ordered Paid by House of Delegates

Sept. 30—Voucher Check No. 13 ........ $50.00
CLARENCE NEIGHBORS, Postmaster, Bowling Green
To postage on Journals
Approved by Council and Ordered Paid by House of Delegates

Sept. 30—Voucher Check No. 14 ........ $99.87
THE TIMES-JOURNAL PUBLISHING COMPANY, Bowling Green
To 2,200 84 Page September Issue ........ 490.60
Less 5% discount ........ 24.53
466.07
To Inserts and Scoring ........ 8.50
To Envelopes ........ 15.00
To Printing Envelopes ........ 2.30
To 40 Changes ........ 8.00
499.87
Less Credit by Check No. 127 8-31-32 ........ 400.00 99.87
Approved by Council and Ordered Paid by House of Delegates

Sept. 30—Voucher Check No. 15 ........ $7.53
MAYME SULLIVAN, Louisville
To reimbursement for express on Journal material, Journals and Treasurer's books, 7-23-9-30-32
Approved by Council and Ordered Paid by House of Delegates

Sept. 30—Voucher Check No. 16 ........ $540.70
THE TIMES-JOURNAL PUBLISHING CO., Bowling Green
To 2,400 80-Page October Issue ........ 485.40
To 69,230 Ems set to 6 point ........ 69.00
To Insert, no Scoring ........ 5.00
To 50 Changes ........ 6.00
565.40
Less 5% discount ........ 28.27
537.13
To Printing Envelopes ........ 2.30
To Postage ........ 1.27 540.70

Approved by Council and Ordered Paid by House of Delegates

| | | | |
|---|---|---|---|
| Oct. 31—Voucher Check No. 17 | | | $150.00 |
| A. T. McCORMACK, M. D., Louisville | | | |
| To October salary, Secretary | | 135.00 | |
| To expenses | | 15.00 | |
| | | 150.00 | |
| Approved by Council and Ordered Paid by House of Delegates | | | |
| Oct. 31—Voucher Check No. 18 | | | $106.85 |
| L. H. SOUTH, M. D., Louisville | | | |
| To October salary, Business Manager | | 90.00 | |
| To expense to Bowling Green, and State Meeting expense | | 16.85 | |
| | | 106.85 | |
| Approved by Council and Ordered Paid by House of Delegates | | | |
| Oct. 31—Voucher Check No. 19 | | | $90.00 |
| J. F. BLACKERBY, Louisville | | | |
| To October services rendered Committee on Public Policy | | | |
| Approved by Council and Ordered Paid by House House of Delegates | | | |
| Oct. 31—Voucher Check No. 20 | | | $102.20 |
| ELVA GRANT, Louisville | | | |
| To October salary, Bookkeeper | | 75.00 | |
| To Honorarium | | 20.00 | |
| To State Meeting Expense | | 7.20 | |
| | | 102.20 | |
| Approved by Council and Ordered Paid by House of Delegates | | | |
| Oct. 31—Voucher Check No. 21 | | | $66.01 |
| MAYME SULLIVAN, Louisville | | | |
| To Honorarium | | 20.00 | |
| To State Meeting Expense | | 46.01 | |
| | | 66.01 | |
| Approved by Council and Ordered Paid by House of Delegates | | | |
| Oct. 31—Voucher Check No. 22 | | | $23.35 |
| RUTH FLAGG, Louisville | | | |
| To Honorarium | | $20.00 | |
| To State Meeting Expense | | 3.35 | |
| Approved by Council and Ordered Paid by House of Delegates | | | |
| Oct. 31—Voucher Check No. 23 | | | 20.00 |
| REBECCA CASSELL, Louisville | | | |
| To Honorarium | | | |
| Approved by Council and Ordered Paid by House of Delegates | | | |
| Oct. 31—Voucher Check No. 24 | | | $20.00 |
| EMILY STOECKER, Louisville | | | |
| To Honorarium | | | |
| Approved by Council and Ordered Paid by House of Delegates | | | |
| Oct. 31—Voucher Check No. 25 | | | $25.00 |
| J. G. OWSLEY, M. D., Lily | | | |
| To Honorarium | | | |
| Approved by Council and Ordered Paid by House of Delegates | | | |
| Oct. 31—Voucher Check No. 26 | | | $104.79 |
| JOHN LOVETT MORSE, M. D., Boston | | | |
| To State Meeting Expense | | | |
| Approved by Council and Ordered Paid by House of Delegates | | | |
| Oct. 31—Voucher Check No. 27 | | | $2.00 |
| D. M. GRIFFITH, M. D., Owensboro | | | |
| To expense as Councilor, 2nd District | | | |
| Approved by Council and Ordered Paid by House of Delegates | | | |
| Oct. 31—Voucher Check No. 28 | | | $96.00 |
| THE FRANKLIN PRINTING COMPANY, Louisville | | | |
| To 750 Copies 1932 Program—32 Pages and Cover | | | |
| Approved by Council and Ordered Paid by House of Delegates | | | |
| Oct. 31—Voucher Check No. 29 | | | $10.02 |
| BUSH-KREBS COMPANY, Louisville | | | |
| To 1 Cut and 2 Zinc Etchings | | | |
| Approved by Council and Ordered Paid by House of Delegates | | | |
| Oct. 31—Voucher Check No. 30 | | | $530.60 |
| THE TIMES-JOURNAL PUBLISHING CO., Bowling Green | | | |
| To 2,200 76-Page November Issue | | 451.40 | |
| To Insert and Scoring | | 8.50 | |
| To 30 Changes | | 6.00 | |
| To 10,940 Ems set 6 pt tab | | 16.40 | |
| | | 482.30 | |
| Less 5% discount | | 24.00 | |
| | | 458.30 | |
| To Envelopes | | 15.00 | |
| To Printing Envelopes | | 2.30 | |
| | | 475.60 | |
| Less Credit by Checks for setting up Tables | | 6.00 | |
| | | 469.60 | |
| To 12,000 Letterheads—Secretary | 45.00 | | |
| To 500 Letterheads and 500 Envelopes, Dr. Vance, Chairman of Council | 6.00 | | |
| To 250 Letterheads and 250 Envelopes, Dr. Martin, President-Elect | 4.00 | | |
| To 500 Letterheads and 500 Envelopes, Dr. Barbour, President | 6.00 | 61.00 | |
| | | 530.60 | |
| Approved by Council and Ordered Paid by House of Delegates | | | |
| Oct. 31—Voucher Check No. 31 | | | $12.50 |
| HINES & COOKE, Bowling Green | | | |
| To premium on bond for Treasurer, Marshall McDowell, M. D., for one year | | | |
| Approved by Council and Ordered Paid by House of Delegates | | | |

| | | |
|---|---|---|
| Oct. 31—Voucher Check No. 32 | | $1.50 |
| THE FLAX COMPANY, Dayton, Ohio | | |
| To 3 Typewriter Ribbons | | |
| Approved by Council and Ordered Paid by House of Delegates | | |
| Nov. 30—Voucher Check No. 33 | | $247.00 |
| A. T. McCORMACK, M. D, Louisville | | |
| To November salary, Secretary | 135.00 | |
| To expense for Association | 112.00 | |
| | 247.00 | |
| Nov. Nov. 30—Voucher Check No. 34 | | $90.00 |
| L. H. SOUTH, M. D., Louisville | | |
| To November salary, Business Manager | | |
| Nov. 30—Voucher Check No. 35 | | $90.00 |
| J. F. BLACKERBY, Louisville | | |
| To November services rendered Committee on Public Policy | | |
| Nov. 30—Voucher Check No. 36 | | $75.00 |
| ELVA GRANT, Louisville | | |
| To November salary, Bookkeeper | | |
| Nov. 30—Voucher Check No. 37 | | $300.00 |
| L. R. CURTIS, Attorney, Louisville | | |
| To services in case of Bruce vs. Drs. Louis and Wallace Frank and P. Boulware | | |
| Nov. 30—Voucher Check No. 38 | | $100.00 |
| C. B. SPICER, Attorney, Harlan | | |
| To services in case of Barnes vs. Dr. C. C. Paynter | | |
| Nov. 30—Voucher Check No. 39 | | $36.32 |
| BUSH-KREBS COMPANY, Louisville | | |
| To 8 Cuts | | |
| Nov. 30—Voucher Check No. 40 | | $120.00 |
| BROWN HOTEL, Louisville | | |
| To Council Dinner | 14.00 | |
| To Woman's Auxiliary Dinner | 106.00 | |
| | 120.00 | |
| Nov. 30—Voucher Check No. 41 | | $507.80 |
| THE MASTER REPORTING COMPANY, Inc., New York | | |
| To reporting Annual Meeting at Brown Hotel, Louisville, October 3, 4, 5 and 6, 1932: | | |
| House of Delegates | 164.05 | |
| Scientific Sessions | 205.70 | |
| Opening Session | 7.65 | |
| Abridging Seven Sessions | 70.00 | |
| Traveling Expense | 52.85 | |
| Postage | 7.55 | |
| | 507.80 | |
| Nov. 30—Voucher Check No. 42 | | $3.00 |
| LOUISVILLE POSTMASTER, Louisville | | |
| To postage on letters | | |
| Nov. 30—Voucher Check No. 43 | | $50.00 |
| CLARENCE NEIGHBORS, Bowling Green | | |
| To postage on Journals | | |
| Nov. 30—Voucher Check No. 44 | | $656.23 |
| TIMES-JOURNAL PUBLISHING CO., Bowling Green | | |
| To 2250—112-Page December Issue | 688.98 | |
| To 14,416 ems tab. work | 14.41 | |
| | 703.39 | |
| Less 5% discount | 35.16 | |
| | 668.23 | |
| Less Credit by Check for setting Tables | 12.00 | |
| | 656.23 | |
| Nov. 30—Voucher Check No. 45 | | $35.81 |
| PHILIP F. BARBOUR, M. D, Louisville | | |
| To expense for trips to Hopkinsville, Stearns, Columbia and Bowling Green and for postage | | |
| Dec. 21—Voucher Check No. 46 | | $241.25 |
| A. T. McCORMACK, M. D., Louisville | | |
| To December salary, Secretary | 135.00 | |
| To sundry expense | 106.25 | |
| | 241.25 | |
| Dec. 21—Voucher Check No. 47 | | $90.00 |
| L. H. SOUTH, M. D., Louisville | | |
| To December salary, Business Manager | | |
| Dec. 21—Voucher Check No. 48 | | $90.0 |
| J. F. BLACKERBY, Louisville | | |
| To December services rendered Committee on Public Policy | | |
| Dec. 21—Voucher Check No. 49 | | $75.00 |
| ELVA GRANT, Louisville | | |
| To December salary, Bookkeeper | | |
| Dec. 21—Voucher Check No. 50 | | $34.70 |
| V. A. STILLEY, M. D., Benton | | |
| To expense as Councilor, 1st District | | |
| Dec. 21—Voucher Check No. 51 | | $3.50 |
| BUSH-KREBS, Louisville | | |
| To 1 Cut | | |
| Dec. 21—Voucher Check No. 52 | | $5.37 |
| MAYME SULLIVAN, Louisville | | |
| To reimbursement for express on Journals and Journal material | | |
| Dec. 21—Voucher Check No. 53 | | $1.90 |
| LOUISVILLE POSTMASTER, Louisville | | |
| To postage on letters | | |
| Dec. 21—Voucher Check No. 54 | | $621.28 |
| TIMES-JOURNAL PUBLISHING CO., Bowling Green | | |
| To 2250—96-Page January Issue | 590.40 | |
| Less 5% discount | 29.52 | |
| | 560.88 | |

| | | | | |
|---|---|---|---|---|
| | To 4 Pages omitted from December Issue | | 24.60 | |
| | To Scoring and Inserts | | 8.50 | |
| | To Envelopes | | 15.00 | |
| | To Printing Envelopes | | 2.30 | |
| | | | 611.28 | |
| | To 200 Letterheads and 200 Envelopes, President, Eye, Nose and Throat Section | 4.00 | | |
| | To 500 Letterheads and 500 Envelopes, Secretary, Eye, Ear, Nose and Throat Section | 6.00 | 10.00 | |
| | | | 621.28 | |
| Dec. 21 | —Voucher Check No. 55<br>THE FLAX COMPANY, Dayton, Ohio<br>To 6 Flax's Cloth Typewriter Ribbons | | | $3.43 |
| 1933<br>Jan. 31 | —Voucher Check No. 56<br>A. T. McCORMACK, M. D., Louisville<br>To January salary, Secretary | | | $135.00 |
| Jan. 31 | —Voucher Check No. 57<br>L. H. SOUTH, M. D., Louisville<br>To January salary, Business Manager | | | $90.00 |
| Jan. 31 | —Voucher Check No. 58<br>J. F. BLACKERBY, Louisville<br>To January services rendered Committee on Public Policy | | | $90.00 |
| Jan. 31 | —Voucher Check No. 59<br>ELVA GRANT, Louisville<br>To January salary, Bookkeeper | | | $75.00 |
| Jan. 31 | —Voucher Check No. 60<br>L. R. CURTIS, Attorney, Louisville<br>To legal services rendered July 1, 1932 to January 1, 1933 | | | $150.00 |
| Jan. 31 | —Voucher Check No. 61<br>MAYME SULLIVAN, Louisville<br>To reimbursement for the following: | | | $8.14 |
| | Express on Journal Envelopes to Bowling Green, 11-14 and 12-16-32 | | 2.02 | |
| | Express on Journals and Journal material 12-13-32 and 1-4-33 | | 1.64 | |
| | Telephone Call to Bowling Green, 11-14-32 | | 1.20 | |
| | Telegram to Philadelphia, 10-28-32 | | .60 | |
| | Telegram to Bowling Green, 11-18-32 | | .30 | |
| | Express on Stickers to Chicago to mail Books, "Costs of Medical Care," 1-4-33 | | .38 | |
| | Freight on Books, "Costs of Medical Care," 1-5-33 | | 1.50 | |
| | Car fare delivering Books, "Costs of Medical Care," in Louisville, 1-5-33 | | .50 | |
| | | | 8.14 | |
| Jan. 31 | —Voucher Check No. 62<br>THE UNIVERSITY OF CHICAGO PRESS, Chicago | | | $914.28 |
| | To 1000 copies Costs of Medical Care | | 900.00 | |
| | To postage on 200 copies | | 4.28 | |
| | To wrapping 200 copies | | 10.00 | |
| | | | 914.28 | |
| Jan. 31 | —Voucher Check No. 63<br>LOUISVILLE POSTMASTER, Louisville<br>To postage on letters | | | $15.82 |
| Jan. 31 | —Voucher Check No. 64<br>BUSH-KREBS CO., Louisville<br>To 5 Zinc Halftones of Photostat Copies of Old Book Pages | | | $18.94 |
| Jan. 31 | —Voucher Check No. 65<br>TIMES-JOURNAL PUBLISHING CO., Bowling Green | | | $392.72 |
| | To 2200—76-Page February Issue | | 463.60 | |
| | Less 5% discount | | 23.18 | |
| | | | 440.42 | |
| | To Printing Envelopes | | 2.30 | |
| | | | 442.72 | |
| | Less 5 days' delay of December Issue @ $10.00 per day | | 50.00 | |
| | | | 392.72 | |
| Feb. 28 | —Voucher Check No. 66<br>A. T. McCORMACK, M. D., Louisville | | | $154.00 |
| | To February salary, Secretary | | 135.00 | |
| | To expense of luncheon meeting of Council Jan. 19th | | 19.00 | |
| | | | 154.00 | |
| Feb. 28 | —Voucher Check No. 67<br>L. H. SOUTH, M. D., Louisville<br>To February salary, Business Manager | | | $90.00 |
| Feb. 28 | —Voucher Check No. 68<br>J. F. BLACKERBY, Louisville<br>To February services rendered Committee on Public Policy | | | $90.00 |
| Feb. 28 | —Voucher Check No. 69<br>ELVA GRANT, Louisville<br>To February salary, Bookkeeper | | | $75.00 |
| Feb. 28 | —Voucher Check No. 70<br>THE UNIVERSITY OF CHICAGO PRESS, Chicago<br>To wrapping, zoning, stamping and mailing 625 copies of Committee on Costs of Medical Care: | | | $100.32 |
| | Postage, 237 copies @ 14c each, 388 @ 11c each | | 75.86 | |
| | Wrapping, zoning, stamping and mailing 625 copies | | 10.03 | |
| | Supplies, 51 lbs. paper, 145 sheets corrugated board, 2 rolls tape and 4th class stickers | | 11.88 | |
| | Cartage, delivering to Postoffice | | 2.30 | |
| | Miscellaneous | | .25 | |
| | | | 100.32 | |

| | | | |
|---|---|---|---|
| Feb. 28—Voucher Check No. 71 | | | $3.93 |
| BUSH-KREBS CO., Louisville | | | |
| To 1 Cut | | | |
| Feb. 28—Voucher Check No. 72 | | | $8.46 |
| MAYME SULLIVAN, Louisville | | | |
| To reimbursement for the following: | | | |
| Calls to Bowling Green in regard to Journal, Nov. 29 and Dec. 17, 1932 and Jan. 13, 1933 | | 2.70 | |
| Call to Dr. Vance, Lexington, regarding Council Meeting, Jan. 13th | | .80 | |
| Express on Journal Envelopes to Bowling Green Jan. 17th | | 1.02 | |
| Express on books, "Costs of Medical Care," from Chicago Jan. 21st | | 1.44 | |
| Express on Journals from Bowling Green, Jan. 9th and Feb. 7th | | 2.11 | |
| Express on Journal material, Bowling Greon, Jan. 24th | | .39 | |
| | | 8.46 | |
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| Feb. 28—Voucher Check No. 75 | | | $453.30 |
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| | | 453.30 | |
| Mar. 31—Voucher Check No. 76 | | | $162.00 |
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| To expense of trip to Mayfield, Feb. 14th | | 27.00 | |
| | | 162.00 | |
| Mar. 31—Voucher Check No. 77 | | | $107.57 |
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| To expense of trip to Ashland | | 17.57 | |
| | | 107.57 | |
| Mar. 31—Voucher Check No. 78 | | | $90.00 |
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| Mar. 31—Voucher Check No. 79 | | | $75.00 |
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| | | 3.48 | |
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| Apr. 29—Voucher Check No. 85 | | | $90.00 |
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| Apr. 29—Voucher Check No. 89 | | $2.50 |
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| To fees in case—Judge R. S. Rose vs. L. B. Croley, M. D. et al | 150.00 | |
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## ORIGINAL ARTICLES

# BENIGN TUMORS OF THE BRONCHUS WITH ESPECIAL REFERENCE TO EARLY DIAGNOSIS; TWO CASE REPORTS*

Paul A. Turner, M. D.

Louisville.

From a review of the literature, benign tumors of the bronchi are benign in classification but not in fact.

If these tumors are not diagnosed early and removed through the bronchoscope, suppurative conditions finally occur in the lung following an occluded bronchus which result in death about as rapidly as from malignant disease. It is, therefore, highly important that these tumors with benign characteristics be recognized before irreparable damage has been done.

Prior to 1932, no one had attempted to give a clinical description of this disease and only about thirty cases had been reported in the literature; a big percentage of these being autopsy reports. Last year, however, Wessler and Rabin reported 14 cases observed clinically and bronchoscopically with biopsy, and the Jacksons 9 cases. In these two contributions, most of the known facts concerning this disease are presented and discussed.

A definition of the disease has never been attempted for a number of reasons: First, the cause is unknown; it is probably an infection as a result of previous infection of the lung with influenza, pneumonia, bronchitis or pleurisy, most of the case histories mentioning influenza as a previous disease. The infective agent, however, as Jackson states, is unknown. In the second place, histological reports of probable benign tumors leave much to be desired. Wessler and Rabin report most of their cases as adenomatous growths while the Jacksons would classify quite similar growths as tumor-like inflammatory hyperplasia. Some pathologists, moreover, have given a verdict of cancer in a few instances where the growth was evidently benign. This discrepancy may easily occur because cells of a malignant appearance may occur normally near the site of the bronchial tumor. There is, therefore, as yet no histological standard. Then again, the size of the tumor rather mitigates against definition because it may be as small as a grain of sand or big enough to occlude a large bronchus. Its shape also varies from smooth and rounded to granular or cauliflowered. It may be sessile or pedunculated. To define a benign tumor of the bronchus, then, one can only state that it is a swelling in the wall of a bronchus or attached to it, caused by an unknown infective agent and which, on histological examination, does not usually give evidence of any malignant morphology,

Studying the case reports of this disease, only three have been found which were diagnosed before occlusion of the bronchus. In these cases there were few, if any, abnormal physical signs in examination of the chest, and x-rays were practically normal.

The symptoms which suggested bronchoscopy for diagnosis in these cases varied. In one case, the only symptoms present were slight cough and several haemoptyses; in another, productive cough only; and in the third, mucoid blood sputum, slight dyspnoea and pain, not severe, in the chest.

Two additional early cases reported in this paper present symptoms quite similar to each other, and these symptoms, in a study of the literature, occur eventually in practically every case of benign tumor of the bronchi. These are, first, an occasional wheeze; second, soreness in the chest on the affected side, and third, hemorrhage without preliminary cough, starting and ending abruptly. As these symptoms are referable to the tumor itself, and not to any secondary lung condition, it is probable that these are the symptoms which will be most commonly encountered early in this disease. These symptoms occurred, furthermore, without any abnormal physical signs in the chest and with negative x-ray findings. It should be emphasized, however, that after occlusion of the bronchus, additional symptoms together with physical signs develop which result from damaged lung beyond the occluding tumor, such as atelectasis, drowned lung, suppurative bronchiectasis, abscess and gangrene. When such serious conditions as these are found, bronchoscopy may be performed too late to be of any benefit to the patient, but, if tumor is present, only the bronchoscope can reveal it before autopsy. The scope of this report does not permit the discussion of the late and often terminal phase of this disease.

The three early symptoms above mentioned, however, I wish to further describe as found in my cases with unblocked bronchus; namely wheezing, soreness in the chest and hemorrhage. The wheeze was probably the least disturbing and occurred only occasionally. It was heard with the mouth open. As it was noticed so infrequently, I suggest that it occurred only when there was a certain amount of moisture about the tumor. Other observers have noticed this symptom sometime during the course of the disease.

Pain in the chest on the affected side was described as a "soreness" with rarely a sharp shooting pain running through the chest from scapula to breast. The soreness seemed to be rather constant and sometimes radiated over the entire chest. This same type of soreness was also present at different times in back, abdomen and arm. Whether or not these indefinite areas of soreness have any significance cannot be told. Presumably they may have resulted because of the focal infection.

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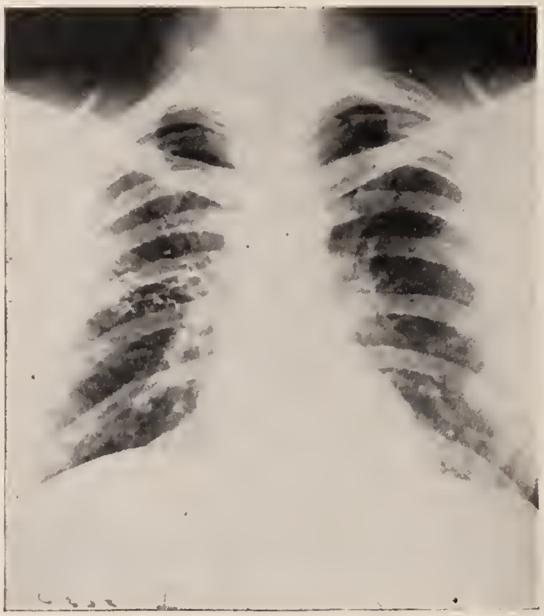
*Hazelwood Sanatorium, Louisville.

Hemorrhage was the most significant and by far the most important symptom. In these cases, hemorrhage occurred at frequent intervals, sometimes only a few days intervening. Amounts varied from a few drops to six or eight ounces. It was bright blood unmixed with mucus or purulent sputum. The patient would feel blood in the mouth and would, with clearing the throat, expectorate clear blood. There was no coughing. As suddenly as it came, the hemorrhage would stop. There followed no streaked sputum and no darkened blood as occurs in tuberculosis or malignant new growths of the lungs. One would expect that some of the blood, as the bronchus was not occluded, would be aspirated and chemically changed blood later expectorated. Wessler states as follows:

> "With a more brisk hemorrhage, however, especially where there is not yet a bronchial occlusion, it is of course possible for the blood to be aspirated and to undergo the chemical changes which result in expectoration of dark blood for some days."

As this did not occur in my cases, I suggest that a spasm of the bronchus may occur which not only may prevent aspiration but aid in a mechanical way in causing the hemorrhage to stop so suddenly. In support of the suggestion I wish to call attention to the fact that in these two cases lipiodol would not pass the tumor into the bronchial tree even though the bronchus was not occluded by it. It would seem then that a bronchial spasm must occur which prevents the flow of the lipiodol. It is, therefore, suspected that the tumor must be so irritable that any foreign body, no matter how bland, which comes in contact with it will set up a spasm in the affected bronchus. This theory is presented merely with the idea that further investigation may prove the reason for the peculiar and characteristic hemorrhage which occurs in cases of benign tumor.

How long a benign tumor of the bronchus may exist without signs or symptoms is not known. Judging from the case reports in the literature, one to five years, or even longer, may intervene between the first lung infection and the first symptom of tumor. But how long after the original infection the tumor begins to form, there is no means of knowing. When the first symptoms as above described, however, do occur, the characteristic hemorrhage alone should suggest benign tumor. It is, of course, the usual thing to suspect tuberculosis whenever a hemorrhage occurs from the lungs. Varices, foreign body, malignant growths, bronchiectasis or abscess may be considered but none of these conditions present the type of hemorrhage found in this disease. With the peculiar type of hemorrhage presented, an occasional wheeze, a sore chest and the failure to make an absolute diagnosis of the above mentioned conditions, it is clinically possible to suspect early benign tumor of the bronchus. If lipiodol is instilled and it fails to enter a bronchus, so much the more may it be suspected. It remains, however, for the bronchoscopist to make the final diagnosis. The bronchoscope and the bronchoscope alone will real the actual condition.



Case I.—X-ray—lipiodol in left lower and right middle lobes, failing to enter right lower, otherwise normal shadows.

Case I. G. H. Male, white, age 25; height 5 feet, 11 inches; weight 216 pounds; occupation, lineman for telephone and telegraph company; blood pressure 142 systolic, 92 diastolic; urine and blood negative; Wassermann negative.

Family History: Mother, two brothers and four sisters alive and well. Father died of Brights disease.

Past History: Whooping cough, measles and chicken pox in childhood; influenza in 1919; has had occasional attacks of coryza; was rendered unconscious by lightening in June 1931—no serious injuries.

Present History: A year and five months

ago, January 1932, while setting telephone poles, the patient on clearing his throat because of a sensation of fullness spit up about a tablespoonful of clear blood. As no more blood appeared he kept on working and thought no more of it until a week later when another tablespoonful was expectorated. He then went to a doctor who told him he had a sore throat for which he was treated. A few days later the same type of hemorrhage occurred, coming and stopping suddenly, and he again went to the doctor. Tuberculosis suspected, he was referred for x-ray. The roentgenograms taken at this time showed a mottling at the base of the right lung which was interpreted as evidence of a possible tuberculous infiltration. He went on sick leave and continued to spit up a tablespoonful of blood every week or two. He consulted another physician who found nothing wrong with his lungs. After eleven weeks sick leave he reported for work and was sent to the company physician who advised removal of tonsils; this was done. X-ray of the lungs at this time showed nothing abnormal. Three weeks after operation he returned to work and worked for one month when he was laid off. During this month he had no hemorrhages. A few days later, however, he had frequent hemorrhages over a three-day period. He went to another physician who found no abnormal physical signs in the lungs, and x-ray and fluoroscopic findings were negative. Later another physician told him he had tuberculosis and he went to bed for one month. He continued to spit up blood every week or two in amounts from a teaspoonful to several ounces until March 1933. During March and April there was no blood spitting but two weeks before admission a severe hemorrhage occurred of about six ounces of clear blood.

All hemorrhages began and stopped suddenly, preceded only by a sensation of fullness in the throat. No blood streaked sputum followed the cessation of a hemorrhage.

A sensation of soreness was present in the chest from the beginning of illness, first noticed in region of the thyroid and gradually extending downward into right chest. This soreness was constant. Occasionally before a hemorrhage occurred the same sort of soreness was felt in left shoulder and upper arm. This was relieved after hemorrhage.

At infrequent intervals he noticed a wheeze which occurred when expelling breath with mouth open.

There was no shortness of breath, no fever, no rapidity of pulse, no night sweats. He gained in weight during the last year from 185 to 216 pounds.

Physical examination showed no abnormal signs. Fluoroscopy of lungs disclosed nothing abnormal. X-rays were negative, the infiltration at right base discovered over a year ago having disappeared. Lipiodol injected into left lower lobe showed a normal bronchial tree. An endeavor to instill lipiodol into the right lower lobe failed although the middle lobe was injected.

A tentative diagnosis of Benign Tumor of the Bronchus was made and bronchoscopy advised. This was done by Dr. Curt H. Krieger who reported as follows:

Bronchoscopy: The preliminary medication was 15 Gr. of Veronal and one full strength H. M. C. tablet. Local anesthesia was obtained by application of 10 per cent cocaine to both pyriform sinuses.

A Jackson laryngoscope was introduced and the hypopharynx and larynx were examined. No bleeding points or neoplasms were seen. A 7 mm. by 45 cm. Jackson bronchoscope was then introduced. The trachea and the right main bronchus inspected. These were somewhat inflamed and narrowed. On further introduction, the secondary bronchi were observed. One leading to the middle lobe was open. That opening leading to the right lower lobe was partially obstructed by four polypoid masses; one of which projected partly into the upper right secondary bronchus.

Diagnosis: Polypoid masses in terminal end of right main bronchus.

Biopsy Report by Dr. Harry M. Weeter, Weeter Pathological Laboratory.

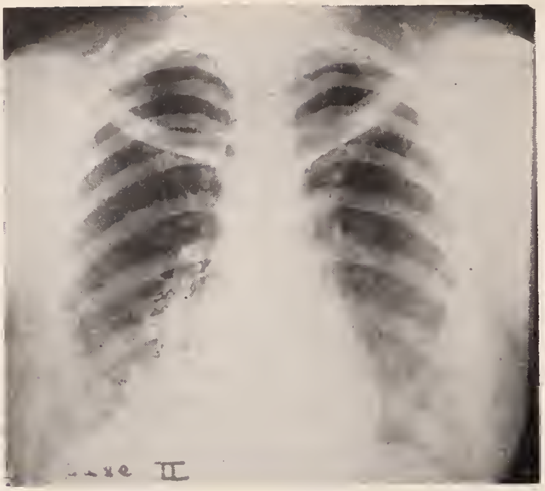
Gross: 4 mm. x 1½ mm nodule of tissue somewhat saucer shaped. The source is bronchus.

Microscopic: Sections show highly vascularized tumor mass, the vessels being large capillaries coursing through a very fine fibrous stroma. In many places these are very numerous forming large vascularized areas. The greater part of the tumor mass is formed of epithelial cells somewhat oval to squamous cell shaped, rather than cuboidal. These in general tend to lie around a central stroma, in groups.

Microscopically, this appears to be benign inflammatory hyperplasia of the bronchial epithelium which has undergone considerable metaplasia to the squamous cell type. No evidence was found to indicate this was malignant.

Diagnosis: Benign, inflammatory epithelial hyperplasia.

Treatment: Tumor removed through bronchoscope and 20 per cent silver nitrate applied. Patient now apparently well though there is a possibility of recurrence.



Case II.—X-ray—lipiodol in right lower lobe, failing to enter left lower, otherwise normal shadows.

Case II. Mrs. R. T. Female, white, age 24; height 5 feet, 9 inches; weight 167 pounds; occupation, teacher; blood pressure 116 systolic, 84 diastolic; urine and blood negative; Wassermann negative; feces negative for blood.

Family History: Parents and one sister alive and well. Husband has tuberculosis.

Past History: Measles, whooping cough, chicken pox and diphtheria in childhood; influenza in 1923.

Present History: In 1925, five years ago, she noticed a pain in left chest, radiating from scapula to breast, which was almost constant for one year. She then felt well until 14 months ago when a soreness developed in left chest. The entire left chest was described as sore, and this has been constant. The same sort of soreness was occasionally present in back and both shoulders. She occasionally noticed a wheeze. Three months ago she spit up a few drops of bright blood after clearing her throat. Since then every few days she expectorated a few drops to a small teaspoonful of clear blood. These hemorrhages occurred without warning and stopped at once. No blood streaked sputum followed. She has had no cough, no mucoid expectoration, no night sweats. Her temperature and pulse have been normal.

Seven months ago she was subject to nose bleeds but has had none for past three months. During this same time she says she passed bright red blood from the rectum.

Prior to admission to the Sanatorium she had been in bed for one year with a diagnosis of tuberculosis. She gained in weight from 120 to 167 pounds.

Menstrual history normal; never has been pregnant.

Physical Examination: No abnormal findings. X-ray of chest and fluoroscopy showed no abnormal shadows and no evidence of air trapping.

Proctoscopic examination revealed normal mucosa. X-rays of gastro-intestinal tract showed only a slightly irritable colon.

Lipiodol instilled into lower lobe of right lung disclosed a normal bronchial tree by x-ray. Lipiodol would not enter left lower lobe.

A diagnosis of suspected benign tumor of the bronchus was made and bronchoscopy advised. This was done by Dr. Curt H. Krieger, whose report follows:

Bronchoscopy: Preliminary medication was one M. M. C. tablet full strength. Local anesthesia induced by application of 10 per cent cocaine solution to both pyriform sinuses. A Jackson laryngoscope was first introduced and the hypopharynx and the larynx inspected. No pathology was visible.

A 7 mm. by 45 cm. Jackson Bronchoscope was then inserted and the trachea and right bronchus examined. No pathology visible in the right bronchus, nor the secondary bronchi.

The left bronchus then examined. On the left side of the trachea, immediately above the main branch, and just inside of the left bronchus on the lateral wall, three small nodules less than one mm. in diameter were seen. This area was slightly elevated and denuded of mucus membrane. This is evidently the point that had been bleeding, as the mucosa was extremely thin in this region.

Diagnosis: Polypoid masses in left bronchus.

Biopsy: Not possible as the growths were too small to be grasped by any instrument. As the tumors disappeared after a short treatment it is felt that this condition was similar to that in Case I, namely inflammatory hyperplasia.

Treatment: Instillation of Mono-P-Chlorophenol every few days. After three weeks the affected bronchus appeared normal.

Comment: It is probable that this disease is not rare and many more early cases will doubtless be discovered provided the bronchoscope is more frequently used.

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BIBLIOGRAPHY

I. Spiess, Gustave: Eine Fall von hochgradugar Dyspnoe infolge eines Polypen in r. Bronchus. Munchen. Med. Wchnchr.: 1910 4, 2095.

II. Jesberg, Simon. Bronchoscopic Studies of Some Conditions of Respiratory Tract. Annals of Otol-Rhin. and Lary. 1926 Vol. 35; 905.

III. Myerson, Mervin C.: Benign Neoplasms of the Bronchus, American Journal of Medical Sc., Nov. 1928, No. 5, Vol CLXXVI, p. 720.

IV. Patterson, Ellen J.: Benign Bronchial Neoplasms. Arch. Otolaryng. 12: 739 (Dec.) 1930.

V. Orton, H. B.: Papilloma of the Bronchus. Ann. Otol., Rhin. & Laryng. 41: 933 (Sept.) 1932.

VI. Davidson, M.: Intrathoracic New Growths and the Value of Bronchoscopy in Diagnosis and Treatment. Brit. M. J. 2: 617 (Oct. 1) 1932.

VII. Clerf, Louis H.: Peroral endoscopy. Archives of Otolaryngology. 17: 246 (Feb.) 1933.

VIII. Wessler, H. and Rabin, Coleman B.: Benign Tumors of the Bronchus. American Journal of Med. Sc. 183: 164 (Feb.) 1932.

IX. Jackson, Chevalier and Jackson, Chevalier Lawrence: Benign Tumors of the Trachea and Bronchi, with Especial Reference to Tumor-like Formation of Inflammatory origin. J. A. M. A. 99: 1747 (Nov. 10) 1932.

# SYMPOSIUM ON LEUKEMIA

## LEUKEMIA, THE BLOOD PICTURE*

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There are few conditions in medicine where the laboratory findings are of greater diagnostic significance than in the leukemic states, and yet even here we must not dispense with our clinical findings and interpretations if we are to properly evaluate all our data. In order to fully appreciate the importance of the various cell types found in the leukemias, it seems proper to delve briefly into the embryology and source of the leukocytes, and to a less extent of the red blood cells.

At first there was much difficulty in classification, and the name leukemia was used because of the white appearance of the blood at autopsy. Subsequently the name leukocythemia was used. Virchow about 1845 differentiated a type in which lymph glands were affected chiefly, instead of the spleen. Neuman later discovered changes in the bone marrow and proposed the name of myelogenous leukemia. 50,000 was arbitrarily used as the dividing line between leukocytosis and leukemia. All emphasis is now laid on the type of blood cells found. Erlich's differential staining made this possible and laid the corner stone of the pathology of leukemia. The differentiation is now made on whether or not hyperplasia throughout the blood, showed myeloid (granulocytic) or lymphoid (nongranular) cells. Ehrlich regarded the hyperplasia as metastatic from bone marrow or lymph glands. This is the basis of the dualistic theory of the origin of blood cells which is generally accepted. At present, however, we regard the hyperplasia not as metastatic, but as the result of activity of the reticulo-endothelium scattered throughout the body. Under the proper stimulus, this undifferentiated mesenchymal tissue becomes active, causing a reversion to embryonic blood formation.

The total cellular constitution of the blood is the resultant of the summation of the rate of entrance in the circulation, and the rate of destruction or removal from the circulation of each type of cell. Since the counts are not of total cells of a particular type, but cells per unit of volume, fluctuations in the plasma volume may mask changes in the total cellular content, or produce apparent changes which actually have not occurred. It is not certain whether the blood cells arise from the mesenchyme, from endothelium or from both. Nor has it been finally decided whether all blood cells are derived from a single multipotent type of cell (the monophylectic theory) or from two or more (dualistic or polyphyletic theories) types of cells, each capable of producing a more limited group of cells. In the embryo, the yolk sac and the embryonic connective tissues are the site of blood formation. Later the liver and to a less extent the spleen become the chief blood forming organs. At birth the lymph glands and other lymphatic tissues and the marrow of both the long and flat bones have divided this function between them. The lymphatic tissues (lymph glands, spleen, tonsils, thymus, etc.) produce the lymphoid cells of the blood stream (possibly also the monocytes) and the marrow produces the remaining cellular constituents of the blood (myeloid leukocytes or granulocytes, the red cells and the platelets). In normal adult red marrow, the white cells and their precursors are about three times as numerous as the red cells and their precursors, while the megakaryocytes, the forerunners of the platelets, constitute about 1% of the cells present. In the red cell forming areas, all stages from the earliest megaloblast to the mature erythrocyte may be found. The changes that occur as maturity progresses, are increase in the hemoglobin content, progressive decrease in size and the coarsening of the nucleus which is subsequently resorbed or extruded.

The myeloblast or stem cell is the precursor of the granulocytes and the parent cell of the myelocytes. It is a cell with a relatively small amount of deeply basophilic nongranular cytoplasm. Its most characteristic features are the nucleoli, four or five in number, and the very finely reticular almost homogenous chromatin net-work in the nucleus. Naegele considers the myeloblast as a form of monocyte. As maturity progresses, there are loss of nucleoli, increasing coarseness of the chromatin structure and subsequent transformation of the nucleus from the round or oval form to the narrowly curved or coiled band which later segments first into two and later into as many as five or six distinct lobes connected by narrow bands of chromatin material. The coincident changes in the cytoplasm are a progressive decrease in basophilia and the development of granules. The first appearing granules appear to stain a purplish red and vary in size and distribution and are spoken of as azure granules because of their affinity for azure which is present in all Romanowsky stains. About the same time the peroxidase stain becomes positive and remains so through all subsequent changes of development. The next granules to appear are of three types which remain throughout all stages of maturation. They are neutrophilic, eosinophilic and basophilic granules. Whether or not the azure granules disappear or are transformed into the latter types, is a moot question. Various names have been applied to the maturation stages of the white cells, notably myeloblast or stem cell, premyelocyte, myelocyte, metamyelocyte, staff cell, polymorphonuclear. The lymphoblasts (not always distinguished from the myeloblast), are large cells having a less basophilic cytoplasm, a darker staining nucleus and closely resembling the immature lymphocytes of normal blood especially in children. The nucleus contains one or two nucleoli, and occasionally azure granules appear in the cytoplasm. If the nucleus is lobulated, it is called a "Rieder Cell."

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*Read before the Jefferson County Medical Society.

The present conception of leukemia is that it is a disease of the blood forming tissues which produce pathological unripe white cells accompanied by hyperplasia of the blood forming tissues. In the fully developed classical form there is a great increase in white cells, and varying grades of splenic and glandular enlargements. These pathological unripe white cells have gained access to the blood stream before reaching maturity. It is not the increased number of leukocytes, but their immaturity which distinguishes leukemia from leukocytosis. However, we have been forced to extend the boundaries of our concept to include the old classical leukemia, since we have found typical pictures of leukemia in which the postmortem showed none of the characteristic evidence of leukemia. To quote from Ordway and Gorham: "It is evident therefore that the essential point in the diagnosis of leukemia is the widespread hyperplasia of the leukocyte producing tissues, and not the presence of the excessively high white count nor the discovery of a certain percentage of abnormal white cells which differentiates it from ordinary leukocytosis. The distribution of this cellular hyperplasia may vary in the individual but it has the same general characteristics in all." Consequently, we now speak of leukemic states embracing several types of leukemia rather than a single diseased picture. All of these states consistently show histological evidence of leukemic hyperplasia, although clinically and hematologically there may be extreme variations of the generally accepted picture of the hyperleukocytosis, enlarged spleen and lymphatic glands. Such a concept therefore includes leukemic, sub-leukemic and aleukemic myelosis and lymphoses. Generally speaking, the oftener a particular type of cell is encountered, the less its significance, and vice versa. Consequently, the more the reversion tends toward the embryonic type cell, the greater the significance.

At the basis of leukemia is the fundamental problem of blood production. It has been considered akin to cancer since a type of blood cell appears to lose its ability to mature; also white blood cells show uncontrolled growth, metastases, and the condition progresses to a fatal termination with cachexia. Furthermore there is absence of bacteriological and other etiological factors and the inability to be transmitted by blood inoculation. The more advanced the stage of the disease, the more primitive the dominant cell in the bone marrow, lymphatics, and blood. The change from a chronic myeloid to the myeloblastic type at the end of the disease has often given rise to the impression that a myelogenous leukemia has changed to one of the lymphatic type. All leukemic patients, if they live long enough, end up in the "blast" stage. When the blood forming cells remain in the bone marrow and lymphoid tissue but only a few reach the peripheral circulation, it is spoken of as aleukemic leukemia. When the metastatic foci develop in other organs, especially those in constant motion, many immature forms are dislodged and the white blood count rises, giving a typical leukemic picture. The disease may run an aleukemic course and terminate in a high white cell count, the increased numbers appearing some time before death. With any type of leukemia, the appearance of increasing numbers of primitive cell forms (primitive "blasts") herald a bad prognosis. During the typical leukemic stage a single blood smear may suffice.

## CHRONIC MYELOGENOUS LEUKEMIA

The blood may appear pale and sticky, in well advanced cases, when it flows. The hemoglobin and red cells are not diminished early, but are later on as the disease advances. This leads to an ultimate severe secondary anemia with characteristic changes, viz., hemoglobin of 40-60% and a red cell count of 2,000,000-3,000,000 or more, giving a low color index. Moderate poikilocytosis and anisocytosis and polychromatophasia and stippling are seen. We may find megaloblasts as in pernicious anemia, if severe. Normoblasts are consistently present. Platelets vary; early they are normal or increased; later they may be reduced, and if much so, it indicates, even during a natural remission, a fatal outcome in the near future. Such extreme reduction is accompanied by a hemorrhagic diathesis. An important feature is the high white blood count, 400,000 to 1,000,000 or more. The immaturity is the important thing, but generally a progressive increase in the white count is an unfavorable sign, and vice versa. The important features are:

1. An increase chiefly in the polymorphonuclear neutrophils of 30%-80% occurs; there is also an absolute increase.
2. Acidophils absolutely increased and often a percentage increase, the usual range being about .5% to 5%.
3. Mast cells increased 3-20% or over.
4. Monocytes absolutely but not relatively increased; they may be hard to differentiate from myeloblasts.
5. Neutrophilic myelocytes may reach 30%-40%; they are never present normally, hence very significant.
6. Eosinophilic myelocytes are numerous; they may contain basophilic granules.
7. Basophilic myelocytes are usually present.
8. Myeloblasts constitute about 1%-3% typically but are variable. They occur in great numbers in acute forms and acute exacerbations.
9. Lymphocytes are reduced relatively, but increased absolutely. They must be distinguished from myeloblasts.
10. Premyelocytes may be the predominant cells and rarely occur elsewhere.
11. The blood uric acid is usually increased.

Some of the most characteristic features of the blood picture are the large total numbers of myelocytes, especially the eosinophilic; increased mast cells and the presence of nucleated red cells. There may be a myeloblastic increase just before death, although some cases are myeloblastic from the start.

Occasionally a myeloblastic leukemia develops upon a chronic picture following a remission induced by x-ray. These are the cases reported as changing from a myelogenous to a lymphatic or "mixed" leukemia.

### CHRONIC LYMPHATIC LEUKEMIA

This condition is less frequent than chronic myelogenous leukemia. The pathology is chiefly a widespread hyperplasia of the lymphatic tissue. On puncture the blood may be pale depending on the degree of anemia. As the case progresses, we find the usual picture of secondary anemia with low color index. The blood platelets are decreased probably because of a crowding out of the bone marrow of their parent cells, the megakaryocytes. The white cell count will usually run 100,000 or more. Since the platelets are usually decreased, thrombopenia does not signify impending death as in the case of chronic myelogenous leukemia. The white cells constitute about 90%-95% of the differential count and correspond to the small lymphocytes of normal blood. There is a decided decrease in those showing azure granules, and in many, only the palely staining nucleus remains. The leukemic cells vary greatly in size. Those with the naked nuclei predominate. Rieder cells are especially common here. Increased fragility is evidenced by the large number of basket cells. The oxidase test is negative.

### ACUTE LEUKEMIAS

The dividing line between chronic and acute leukemias is not always easy. Still greater difficulty may be encountered in differentiating acute lymphatic leukemia from the acute myelogenous form, despite recent staining developments. We now believe acute myelogenous is more common than acute lymphatic leukemia since we recognize cases as myelogenous which were formerly diagnosed lymphatic leukemia.

### ACUTE MYELOGENOUS (MYELOBLASTIC) LEUKEMIA

There is a rather rapid fall in the red count and hemoglobin, giving a marked anemia. The white count may be low at first or during the course of the disease, possibly ranging from 3,000-30,000 early. Rarely does the white count exceed 100,000. The platelets are markedly reduced. The first glance indicates a lymphatic leukemia of the large lymphocyte type, but closer scrutiny reveals fine granules,—a transition between the myeloblast and myelocytes,—the premyelocytes. These three types of cells form a large percentage, 30-60% or more of the white cells. Other evidence of rapid and atypical growth is the frequent absence of acidophils and basophils and the presence of Rieder cells. Occasionally the myeloblast may be almost the only cell type found and cause an erroneous diagnosis of lymphatic leukemia to be made. The oxidase test, if positive, in the large lymphoid like cells of any acute leukemia, is conclusive evidence of their myeloid nature, but only a positive result is conclusive. The blood culture is usually negative. Further evidence of immaturity of the cells, is the not infrequent finding of mitotic figures in the blood smear.

### ACUTE LYMPHATIC LEUKEMIA

This is preponderantly a disease of childhood. The severe secondary anemia is comparable to that of the myelogenous form. The white count gradually rises from normal or subnormal to 200,000,—1,000,000 or over. Some, however, are aleukemic throughout the disease. The platelets are markedly reduced with the usual tendency to hemorrhage. The lymphocytes are increased to 50-90% or more, and are chiefly the large type. Rieder cells are abundant. Azure granules are absent or greatly diminished. The small lymphocyte with azure granules is always decreased. Vacuolated protoplasm of the lymphocytes is common. Lymphoblasts may be numerous in this form only. Acidophilic and neutrophilic leukocytes are relatively reduced. Myelocytes are rare. They may reach 10% but are transitory and disappear as the disease progresses. Blood cultures are usually sterile.

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## LEUKEMIA, ITS ETIOLOGY AND PATHOLOGY*

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The leucocyte count of the average individual, enjoying health and the activities of life is between six and ten thousand cells per c. m. m. of blood, so arranged by nature that normally 60 to 65% are granulocytes, 30 to 35% lymphocytes and 5 to 10% monocytes. The granulocyte originating from the hematopoietic centers of the bone marrow passes through its stages of development from the promyelocyte, the myelocyte, the metamyelocyte and normally appears in the blood largely as the fully matured neutrophilic myelocyte, losing its power of further division, though assuming amoeboid movement, phagocytic action and likely playing some unknown part in the protection of the human system. The lymphocyte from the germinal centers of the lymph tissue and the monocyte supposedly from the reticulo-endothelial cells likewise pass through their stages of mitosis and normally appear in their matured state with the granulocytes as the leucocytes of the blood and likely protective agents of the system.

Though the role of the leukocyte has not yet been fully determined, experience has taught us that a decided variation from this normal range, whether it be a stimulation with a decided increase or a depression with a definite decrease, is indicative of infection or disease.

If in their response to a definite infection the leucocytic centers function in accordance with the demands of the system the diagnosis, course and severity of the infection can often be determined, not only by the total increase of the leucocytes found in the blood but also by the variety and percentage of the different cells found.

Should this disease or infection so disturb the leucoblastic elements that their activity is no longer in keeping with the demands of the system and a marked increase in leucocytes appear in the blood, with a high percentage of premature cells, whether they be granulocytes, lymphocytes or monocytes a grave condition is indicated and a cloudy prognosis is predicted. For if supported by history and clinical findings the above leucocytic picture is that of leukemia and has been well defined as a fatal disease with a marked increase of the leucocytes in the blood, together with enlargement and proliferation of the lymph tissue of the spleen, lymph glands and bone marrow.

Though leukemia has attacked the human family through generations past and its cause and effect have been carefully studied by the medical profession through those ages, but little progress has been made, for its cause is still unknown and its fatalities still 100%.

Characterized by its attack on the tissues giving origin to the leucocytes or on the forces regulating the activities of these tissues, causing a tremendous output of premature cells and running aseptic course as usually it does, it is felt by many to be systemic rather than localized and caused by an infectious organism yet undetermined. Closely resembling lymphadenosis, mononucleosis and other known infectious conditions in its blood picture and differing clinically only in its prolonged course and outcome, difficulty is sometimes experienced in differentiating leukemia from some infections and we are deeply impressed with the theory that infection plays some possible part in the cause of leukemia.

With a leucocyte count of 180,000, a differential count of 90% lymphocytes and enlarged cervical glands, a child 12 years old, it is reported, was diagnosed as lymphatic leukemia and a cloudy prognosis given.

A week later a definite cough developed, the leucocyte count dropped practically to normal, the diagnosis was changed to whooping cough and in due time the child was well again.

The blood of a case with puerperal sepsis recently examined in our laboratory showed a leucocyte count of 36,000, with a differential picture closely resembling myelogenous leukemia. Had the condition not been known and the clinician's diagnosis not considered, the laboratory findings may have been misleading. Presenting a picture so closely resembling that of leukemia as the blood of this patient did, that a differentiation could not well be determined except from the clinician's findings is very suggestive that the blood centers of this individual received a stimulation very similar to that received in leukemia.

Again in considering the leucocytic response to an unknown stimulation, several cases are reported which presented a typical clinical picture of acute myeloblastic leukemia; the course and laboratory findings being such that no other diagnosis was considered.

All died of what was clinically myelogenous leukemia and would have been recorded as such had they not gone to autopsy. At autopsy caseating tuberculosis involving the lymph nodes, and spleen was found and there was no evidence of the changes found in leukemia. Five cases of known myelogenous leukemia are reported from which avian tubercle bacilli were demonstrated at postmortem.

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*Read before the Jefferson County Medical Society.

A number of glandular fever cases have been diagnosed as lymphatic leukemia. So closely related are the clinical and laboratory findings that the differential diagnosis often is made only by the patient with glandular fever returning to health and the one with leukemia ending fatally.

With this apparently convincing evidence that leukemia is an infection, many attempts have been made to transfer leukemia from man to animal or from one species of animal to another but all have failed. Schupfer, in 1905 injected the blood from a patient with myelogenous leukemia into the veins of three persons with carcinoma, but met with no success.

Ellersman describes a chicken leukemia which may be transferred by a filterable virus but which may show myelogenous lymphatic hyperplasia.

Many attempts have been made and much evidence presented to prove leukemia an infection, but none thoroughly convincing. Attacking the leukocytic centers as it does, causing a blood picture, in its early stages that closely resembles that of a pyogenic infection, strongly supports the possibility of infection playing some part in the cause of leukemia. Though apparently arrising in the bone marrow, lymph glands or reticulo-endothelium and metastasizing to all tissues of the body is suggestive that leukemia is in reality a malignancy.

Ewing states that leukemia may show every gradation from acute inflammatory to a chronic and somewhat malignant neoplasm.

Hartman states that myelogenous leukemia is, in truth, a malignancy involving the leucocytic centers of the blood stream; causing a rapid overproduction of premature cells that are not only useless to the human system but infiltrate vessel walls and organs, interfering with proper organic function and causing death.

Stout states that lymphatic leukemia is generally conceded to behave like a neoplasm and its relationship to lymphosarcoma is very close because either disease may exhibit characteristics of the other at different stages of its course.

Several cases have been reported in which a diagnosis of lymphosarcoma was made from biopsy. Later the patient presented a blood picture of lymphatic leukemia and autopsy findings supported the diagnosis of leukemia.

Can the theory of a misplaced embroyonic cell, irritated by stimulation from some unknown cause be given any consideration in our efforts to find a cause for leukemia? Herxheimer feels that in myeloid leukemia the leukemic infiltrations outside of the normal stations for the formation of leucocytes are autonomous, as such infiltrations sometimes appear before the blood forming organs become active and these myeloblasts do not give the oxydase reaction which is characteristic of cells from the bone marrow.

Heredity apparently plays no part in the susceptibility of the human individual to leukemia though a leukemia is reported in guinea pigs which when inherited through several generations may assume the characteristics of leukemia, aleukemia or lymphosarcoma.

Appearing twice as often in the male as the female may be considered likely as support of the infectious theory of leukemia through agranulocytosis felt by some to be caused by the same or a similar toxin, as malignant in its action and almost as fatal in its outcome, more often attacks the female.

The pathology of leukemia is rather definite depending somewhat on the stage of the disease. The appearance of the characteristic cells in the blood is the finding on which our diagnosis is based. The involvement of the bone marrow, spleen, lymphnodes and other pre-existing lymph tissue is characteristic of each type of leukemia. A systemic involvement of the blood forming tissues with secondary involvement of practically all other tissues is rather a constant finding.

Multiple hyperplastic foci appear in the bone marrow, which grow, coalesce and crowd out other tissues to be found there. An abundance of mononucleated round cells, uncontrolled in their over production crowd out and obliterate the normal cells of the bone marrow.

The lymph glands disturbed somewhat in a similar way may show involvement of a chain of lymph nodes which become over active, enlarge, coalesce and give the appearance of a tumor formation. The entire lymphatic system may become involved giving rise to multiple deep and superficial tumor formation. The spleen often many times its normal size, shows similar pathology to the lymph glands. Its extreme enlargement is more often found in myelogenous than in the other leukemias. The liver, skin and all other tissues are involved, their normal function interfered with and death brought about as a result. The pathological findings are not convincing as to the cause of leukemia.

Assuming it malignant and classifying it as a neoplasm only adds to the unsolved mysteries of leukemia and offers but little reward for the efforts spent to determine its cause.

Attacking those tissues of the human system which respond in diseases known to be caused by an infectious organism, and often causing a similar picture, gives hopes that the cause may be similar. Closely resembling an infectious condition, in one phase and a malignancy in another, leukemia serves, it seems, as a possible connection of the two conditions.

Attacking with equal violence the myeloblastic, lymphoblastic and monoblastic centers and proving fatal in every case, impresses the fact that our hopes have not been realized and our efforts to determine its cause have not been fully rewarded.

## THE CLINICAL PICTURE OF LEUKEMIA*

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Leukemia may well be divided clinically into two different types; myelogenous and lymphatic. These two types are further divided into acute and chronic. These classifications are made to clarify the symptoms which are found in the leukemias, some of which are common and others of which may well be called specific.

Leukemia usually begins in a very insidious manner. Many times the patient presents himself to the Doctor complaining of loss of appetite; loss of weight; general weakness; unable to do his days work; palpitation of the heart; shortness of breath and pallor. Not necessarily are all of these complaints present. At the same time the patient does not realize there is anything serious wrong. On other occasions the patient will complain that he can feel a mass or tumor in the abdomen. Cardiac symptoms are not marked until near the termination of the disease. The pulse is rapid and soft. Edema is present toward the late stage also. Headache, dizziness and fainting which appear are due to the anemia present. The patient complains of nausea, vomiting, flatulence and diarrhea. Jaundice is not common. Hemorrhage is a very common occurrence, being most common from the nose. Priapism is present in a majority of cases. The cause is not known. In the female irregularities of menstruation are very frequent.

The most important physical finding will be the greatly enlarged spleen. The borders of the spleen may extend below the crest of the ileum and well beyond the mid-abdominal line. The splenic enlargement often causes pain within the abdomen, due to the heavy weight of the spleen and to pressure on the adjacent structures. The notches of the spleen can often be palpated. The size of the spleen varies from time to time. The variation of the spleen has a very distinct and marked effect on the appetite. As the spleen becomes larger the patient is able to eat very little, and as it grows smaller due to the various forms of treatment the appetite improves. Pain over the bones is not common. When present it is usually found over the sternum. Pressure over the sternum illicits tenderness. This tenderness decreases as the general condition improves and becomes more marked as the disease progresses. The above type of leukemia is most frequently found between the ages of twenty-five and forty-five years. It is more prevalent in males.

Chronic lymphatic leukemia is most frequently found between the ages of forty-five and sixty years. Males are affected in the approximate ratio of two to one.

Acute lymphatic leukemia occurs in early life, usually below the age of twenty years. It is one of the most distressing and dreadful conditions with which we doctors have to deal. It may begin following an attack of tonsillitis, abscessed tooth, or other minor infection. I recall, while serving in one of the local hospitals prior to private practice, a young man, who had what appeared to be felon on the thumb of the left hand. This was opened and good drainage obtained. Apparently this did not give relief. Swelling and hemorrhagic areas developed over the entire left arm. Extreme prostration; rapid weak pulse; hemorrhage from the nose, gums and intestines appeared. The gums became ulcerated. Blood count showed typical lymphatic leukemia picture. The boy died within five days. This case reveals a typical picture of acute lymphatic leukemia. The membranes of the mouth become swollen, inflamed, ulcerated and even gangrenous. Hemorrhages from the mouth, nose, stomach, rectum and even the bladder are practically always seen. Apparently there is no way to control these hemorrhages. Anemia and prostration develop very rapidly. The temperature is very high, often reaching as high as one hundred and six degrees. Death is swift in these cases, coming often within seven days. The glands many times will not become enlarged in this type before death occurs.

In chronic lymphatic leukemia we find an entirely different picture. In the first place the patient is usually past forty-five years of age. Ordinarily the first sign of illness is a progressive and rather rapid enlargment of the glands of the neck. In a very short time the axillary glands are enlarging, followed in due time by the inguinal glands. The spleen enlarges rather slowly and is not as marked as in the myelogenous type. The liver becomes enlarged, in some cases extending three to five finger breadths below the costal border. It is smooth and firm and the edges are easily palpable. The urine may contain albumin and casts. Weakness, loss of appetite, loss of weight and general signs of anemia are present. The skin may become pigmented. Pruritis, urticaria, and small nodular masses are often found. There are often definite leukemic changes in the fundus of the eye. If there is any bleeding in this type of leukemia it is most frequently found in the very late stages of the disease.

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*Read before the Jefferson County Medical Society.

Diagnosis of lymphatic leukemia is made from the enlargement of the lymph glands, the liver and the various signs of anemia. We also find the very characteristic changes in the blood. Death occurs in from two to ten years, although there are cases on record of longer duration.

Diagnosis of myelogenous leukemia is made from the great enlargement of the spleen; weakness; pallor: loss of appetite and weight: dyspnea and the characteristic changes found in the blood. The disease progresses, alternately improving and becoming worse. Death occurs usually within three years. However it may continue longer, there being at this time a case on record in Chicago which was diagnosed more than twenty years ago by Dr. DeLee. In all cases of leukemia death may occur from some secondary condition and not from the leukemia.

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# THE TREATMENT OF LEUKEMIA*

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An unbiased appraisal of the average results of conscientious and well informed supervision of patients with chronic leukemia reveals that the inevitable consequence of this disease can be deferred but slightly if at all. However the timely and skillful application of the various measures at our disposal frequently enables patients to continue their usual occupations and mode of living in comparative comfort for several years longer than would be possible otherwise. Many physicians can recall victims of leukemia who have survived for ten, fifteen or even twenty years but these are rare exceptions and their comparative longevity is due to spontaneous remissions rather than to the efficacy of particular schedules of treatment. The average duration of chronic leukemia is three to three and one-half years but with appropriate management this can be extended by about 30 per cent. The acute form of leukemia is apparently not influenced by any form of treatment. To relieve distressing symptoms and to prevent or arrest serious complications are important functions of the physician as well as to administer agents intended to combat the more fundamental manifestations of the disorder.

The application of Roentgen rays and radium by a skillful radiologist is usually followed by marked clinical improvement, a prompt reduction in the number of circulating leucocytes and a decrease in the size of the spleen. The dangers inherent in the use of these agents are well understood by competent radiologists but the referring physician must realize that responsibility for the result of treatment is largely his own and that he must be guided in his selection of the time for this and other palliative measures not only by the number of leucocytes in his patient's blood but by the patient's clinical condition with all that this term implies.

Roentgen-ray therapy was first used in the management of leukemia in 1903 by Senn and radiation in some form either with x-ray, radium or Thorium has become a standard method of treatment. In referring a patient to a radiologist it is important to bear in mind that when the hemoglobin is below 50 per cent or when the blood platelets are so low as to cause purpura little benefit is to be expected from irradiation. Furthermore when there is a large percentage of myeloblasts in the peripheral circulation irradiation will do no good and may do harm. It will be recalled that myeloblasts mature by passing through their stages of development into myelocytes and metamyelocytes eventually becoming polymorphonuclear leucocytes. At this latter stage they have lost the power of amitosis which they possessed in their immaturity and acquire the ameboid phenomena of adult leucocytes. When a large number of primitive cells like myeloblasts are stimulated by irradiation they may divide and reproduce rapidly thus causing an exacerbation of the very condition it is intended to combat. Whereas, if the predominating immature cell in the blood stream is the myelocyte which has lost the property of reproduction by cell division, irradiation hastens its maturity to the polymorphonuclear stage and thus proves beneficial.

In addition to irradiation arsenic, preferably as Fowler's solution, is best administered in the following manner.

Treatment is begun with doses of not less than 5 minims three times daily for two days, preferably in orange juice immediately after or with meals. On the third and fourth days 6 minims are given three times daily and the increase is continued in this manner to about 10 minims three times daily, thereafter increasing by 1 minim per day until toxic symptoms are pronounced or until the leukocyte count approaches normal. Thereafter medication is omitted for from two to five days and then the dose is decreased from the maximum by 1 minim per day down to a maintenance dose of 5 to 8 minims three times daily. This is continued indefinitely. The best results are obtained by the rapid relentless administration of the drug. Patients who take their medicine in a hit-or-miss fashion do not respond well.

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*Read before the Jefferson County Medical Society.

The dosage of Fowler's solution should not be decreased until the leukocyte count is near normal and then only gradually according to the above plan. There is apparently no danger of producing an actual and permanent aplasia of the blood-forming organs.

Omission of the medicine for longer than one week is of no advantage and may eventually necessitate more medication than if it is continued in small doses. Mild toxic symptoms may be disregarded.

Patients often believe that they cannot take Fowler's solution, and will become nauseated and will vomit, even when taking as little as 3 minims three times daily. In such cases if the patient has taken only small amounts of Fowler's solution and the leukocyte count remains high, twice the dose which he should be taking by mouth should be given by rectum in a few ounces of water.

The use of benzole in leukemia dates from the observation of Santassen in 1897 that persons using benzol in a bicycle factory suffered a marked reduction in the number of leukocytes and red blood cells. This was confirmed by Selling in 1910 and Koranyi made practical use of it in 1922 in a patient with leukemia with marked improvement in the blood picture. Its toxicity and the disagreeable effects, including sudden death, arising from its administration preclude its general use. It is prescribed in gradually increasing doses of 8 to 15 minims four times daily each dose being put into a capsule just before taking. During the administration of benzole as with arsenic the leucocyte count must be watched closely every few days so that the drug may be reduced or omitted as the blood count approaches normal.

It would be unprofitable to enumerate all the various ineffectual remedies that have have been used in the treatment of leukemia. Because of its fancied superficial resemblance to malignancy such questionable remedies as radio active waters, colloidal phosphate of lead and so forth have been used. Likewise arsphenamine and kindred drugs have been employed but with uniform disappointment.

The anemia that invariably accompanies leukemia is combated in the usual manner with iron, copper, liver extract, ultra violet light and blood transfusions and where conditions permit, sojourn to a pleasant climate.

Arresting hemorrhages in the leukemic patient often requires considerable skill and patience and the physician with such a patient under his care should have constantly at hand suitable remedies, instruments and dressings with which to stop bleeding from the various orifices of the body or from trivial wounds. Adrenalin, ergot, Monsel's solution, ceanothyn, hemostatic serum, and packing material for nasal cavities, tooth sockets or uterus may be necessary at any moment. Hemorrhages of the retina causing sudden blindness, hemorrhage in the internal ear causing deafness and vertigo, and hemorrhage of the cerebral vessels causing paralysis, or aphasia are all eventualities for which the physician is summoned but in the presence of which he becomes painfully aware of therapeutic limitations.

The observation that accidental intercurrent infections have had salutary effect on the course of leukemia has led to the intentional and deliberate inoculation of leukemia patients with malaria and other fever producing organisms. The results of this procedure have not been encouraging enough to warrant its inclusion in the usual schedule of treatment, for as soon as the malaria or other infection is eradicated the leukemia progresses with increased rapidity.

Splenectomy may be resorted to for relief of the heavy dragging pain due to the weight of the greatly enlarged spleen. This operation is attended by a high mortality, has only questionable beneficial effect on the course or duration of the disease and can only be attempted after suitable x-ray or radium treatment has been administered.

The feeling of over stimulation which many of these patients experience, and which is due to their increased basal metabolic rate, often causes insomnia and exaggerated emotional outbursts which must be combatted with suitable sedatives and hypnotics. And finally as the scene closes during an intractable hemorrhage or a painful and distressing complication of any kind, the compassionate physician will not neglect the liberal use of opiates.

## DISCUSSION

**Virgil E. Simpson:** The Leukemias may usually be differentially diagnosticated on the basis of a study of the blood picture, the lymph glands and the spleen.

When the clinical findings and the blood picture are studied together, diagnostic error is relatively rare. Either considered alone may rather frequently lead to error. Notwithstanding, both the clinician and the laboratry worker persist in tying diagnostic labels independently.

The blood picture typical of the leukemias implies quantitative and qualitative changes in the white cells. The qualitative changes are of greater significance diagnostically than the quantitative alterations, and the most significant qualitative change concerns the maturity of the white cells. The white cells seen in the blood, in health, are fully developed or mature. When demands greater than those of health obtain, immature cells are forced into the blood stream; these cells are less effective than mature cells and their presence is evidence of a response beyond the point of maximum efficiency. The predominance of immature myelocytes on the one hand or of immature lymphocytes on the other determines the classification of the leukemia, since hyperplasia of bone marrow obtains when the immature cells are myelocytes and hyperplasia of lymph glands, spleen, thymus, Peyer's patches and tonsils when the immature cells are lymphocytes. Not only is the clinical grouping determined, but the site of pathology established. If quantitative and qualitative changes in white cells occurred only when the leukemias obtained, the diagnostic problem would be easy, but simple leukocytosis results from infections, many of the acute transmissible diseases, intoxications, hemorrhage and in rapidly growing neoplasms of the digestive system of the bone marrow. Even Banti's and Hodgkin's diseases as well as Von Jaksch's syndrome may present a blood picture closely resembling myeloid leukemia. Therefore, more than merely laboratory study of the blood may become necessary for diagnosis. On the other hand, a simple lymphcytosis results from glandular tuberculosis, Hodgkin's disease and lympho-sarcoma. Even whooping cough, mumps, measles, undulant fever and infectious mononucleosis present a blood picture often closely resembling lymphatic leukemia. And, again, more than merely laboratory study of the blood may becme necessary for diagnosis.

Differentiation between myeloid and lymphatic leukemia, while ordinarily easily accomplished by a differential smear study, may present difficulties, especially in the more acute forms. In fact, until 1905 all acute forms were thought to be of the lymphatic type. In these cases the peroxidase stain proves very helpful. The method depends upon the physiological fact that myeloid cells contain an oxidizing ferment, while lymphoid cells do not. Hence, cells showing granulation on staining are myeloid, while in lymphatic leukemia negative results are obtained. Myeloblasts, unfortunately, do not yield a positive peroxidase stain.

What may be learned from a clinical study that is helpfully differential? An enlarged spleen is rather constant in myeloid leukemia and attains its maximum size in this disease. While the splenic tumor is comparatively smaller in a group of lymphatic leukemias than in an equal number of the myeloid type, the mere size alone is not helpful.

In Gaucher disease, there is a history of familial incidence; it begins in early life, there is no jaundice, and no ascites; it is essentially chronic, the patient living 30 to 40 years; the spleen is greatly enlarged and the liver, secondarily and constantly, becomes enlarged. This condition is an endothelioma of the spleen.

Banti's disease is a splenic anemia; it presents a tendency to hemorrhage, esophageal varices, a cirrhosis of the liver, jaundice and ascites; the spleen is markedly enlarged, smooth, very firm and painless.

The splenic enlargement of malaria, typhoid, polycythemia, lues, polyserositis, amyloid disease and tuberculosis is not marked and the signs of the accompanying disease are helpfully diagnostic.

Cysts of the spleen are rare and are usually of echinococcic origin; a cystic degeneration may obtain in a tumor of the spleen.

Infarct of the spleen is of acute onset and the parent trouble can usually be demonstrated. This is likewise true of splenic abscesses.

A lymphadenopathy is characteristic of lymphatic leukemia, but certainly cannot be considered pathognomonic.

Enlarged lymph glands permit a classification of (a) infections, (b) granulomata, (c) neoplasms, (d) leukemia. The granulomata may be tuberculous, luetic or Hodgkin's disease. If the two first should be the cause, the additional clinical picture is helpful. Hodgkin's disease usually begins in a group of glands and generalization occurs late in the disease. The masses are large, tend to coalesce, show little mobility and pressure symptoms are common. The deforming asymmetry of advanced Hodgkin's is never seen in lymphatic leukemia.

Lympho Sarcoma is localized at onset, infiltrates surrounding tissue, is fixed, forms large tumors and spreads by metastasis. The glands are never discrete and the spleen is rarely involved, neither is there ever a lymphatic infiltration of the skin, pharynx or larynx.

The acute leukemias present an even more difficult diagnostic problem than do the chronic forms. I question if they differ from the chronic forms except in the time element; they probably represent merely a fulminant type of the same etiological factor.

The age factor is of some importance. If an acute leukemia is apparent after the second decade it is most likely merely an exacerbation of a chronic process. The chronic myeloid type occurs during the third and fourth decades, while the chronic lymphatic form is usually seen after fifty years of age.

I am persuaded that at least a large minority of the cases diagnosed as acute leukemia are, in reality, infectious processes and not true leukemias.

With reduction of platelets, mucous and cutaneous hemorrhages, how easy to mistake it for thrombocytopenia or purpura hemorrhagica. With a sore throat, necrosis of buccal or gingival mucosa, especially if Vincent's organisms be present, it might easily simulate Vincent's Angina. With an enlarged spleen, an irregular temperature course, diarrhoea and intestinal hemorrhage, how easily may typhoid fever be overlooked. Then, if the reparative mechanism be overwhelmed and no new cells reach maturity, one is not surprised at a diagnosis of malignant neutropenia. I feel that the enthusiasm of some clinicians for new names and new groupings is responsible for much of the confusion in diagnosis. It is a matter of serious doubt whether neutropenia is a clinical entity; and it may well be believed that microorganic infectious processes are all too frequently called acute leukemia. A subacute bacterial endocarditis has given me much difficulty in differentiation.

With such confusion and difficulty in diagnosis of these various diseases, particularly in the chronic forms, one turns to biopsy studies with an added feeling of confidence. The removal of a lymph node is easy and safe. Why is it not done more routinely? Obtaining a specimen of splenic tissue is a bit more formidable, but the information secured makes the procedure justifiable. Even in the myeloid form bone marrow may be obtained in vivo. The pathological study is the most dependable criterion for a diagnosis.

**Jos. C. Bell:** The subject of leukemia has been so thoroughly covered by the essayists that it leaves very little to be said. I will therefore confine my remarks to radiation therapy in this disease.

We treat only the chronic form of leukemia by radiation for in the acute form radiation not only does no good, but may actually do harm. Dr. Speidel called attention to this in his paper and Dr. Isaacs, of the University of Michigan, also referred to it in a recent paper published in the Archives of Internal Medicine. In this paper he discussed the whole subject of the action of radiation on the cells of the body, especially the blood cells. Dr. Isaacs, in discussing myelogenous leukemia, stated that the primitive cells, the myeloblasts, have two properties, one of which is to pass to maturity through the stages of the myelocyte and the adult form of leukocyte. The other property is that of reproducing the myeloblasts. If the latter property predominates the progress of the case probably will be unsatisfactory.

He shows that the action of radiation in therapeutic doses is that of stimulating the primitive cells to pass rapidly through the various stages of development to maturity and eventually to die. He believes that radiation therapy is the most dependable form of treatment.

Most of the leukemias that we see are of the chronic type with counts ranging from 40,000 to four or five hundred thousand white cells. In the myelogenous form the spleen is usually greatly enlarged and in this type there may be some enlargement of the lymph glands also. In the lymphatic type lymph gland enlargement predominates.

There is considerable difference of opinion as to the method of radiation in myelogenous leukemia. Some believe that radiation over the spleen is the first consideration, with radiation of the long bones and various other parts of the body to be held in reserve in cases where radiation over the spleen will not control the disease. In my own cases I prefer to radiate the spleen primarily for I have found that with care the disease can be controlled quite readily and promptly. The very satisfactory and prompt response is of importance from the economic standpoint for maximum results are secured with relatively few treatments. It is important to watch the blood count carefully during the first series of treatments and give only sufficient treatment to bring the number of white cells down to a satisfactory level. In my own practice I take an arbitrary level of 30,000 white cells per cubic mm. and at any time the count rises above this level treatment is given until a satisfactory reduction takes place.

**Armand E. Cohen:** There are two very important points, however, that have not been mentioned. One is the study of the eye grounds in myelogenous leukemia and the other is a study of the basal metabolism in these cases. A study of the eye grounds will show a marked erudative process so characteristic that once observed it could hardly be confused with any other condition. Regarding the basal metabolism; in this unfortunate condition the basal metabolism is markedly increased. When these patients are put at rest in the hospital they often do quite well, but after their discharge they often return in a most wretched condition. It is an interesting conjecture whether or not these patients should not be treated like toxic thyroid cases in so far as absolute bed rest is concerned.

The suggestion has been made that whenever doubt exists as to the diagnosis after the study of the blood film, a biopsy and study of a diseased gland is sufficient. It would seem that this would be a comparatively simple matter but unfortunately in the more atypical cases there seems to be as much difference of opinion regarding microscopic criteria among the pathologists, as there is difference of opinion among the internists who study the condition from a clinical standpoint.

Regarding the condition known as granulocytosis, it may be of interest to know that Dr. Kinsman, has been selected as chairman by the joint hospital committee—to work with a selected group of physicians of this city to study and report on all cases occurring in the local hospitals. I have studied the very interesting group of cases that have occurred at the Jewish Hospital. My observation has been quite in agreement with the Harvard workers whose conclusions were made after the study of a very large number of cases; namely that the first four days after the onset of the malady is the important period since death usually occurs within that period. If the patient's condition can be prevented from getting worse, or improved during the first four days the prognosis is not so terrible. It is suggested that adenine sulphate and nucleotide are the drugs of choice. There is some evidence to indicate that arsenic and x-ray therapy depress the hemapoetic centers in this condition and are contraindicated.

**D. Y. Keith:** I shall confine my remarks to the treatment of this condition.

First, in regard to myelogenous leukemia, I am not convinced that radiation therapy will prolong the lives of these individuals, but I do know that it will add to their comfort and increase their efficiency, because we have seen numbers of patients who were practically bed-ridden restored to an almost normal state of efficiency and stay that way for a long time.

We have seen this condition in children as young as three years, and at the present time we have under observation a case in a man who is in his seventieth year.

One of the gentlemen in discussing this subject tonight said that the average life of these patients is 3½ years. I have not at hand statistics upon which to base a statement of the average length of life of patients that we have treated, but I do know that we have one who has lived 8½ years. We have seen and treated an average of perhaps five or six cases of myelogenous leukemia each year during the past fifteen or twenty years. In the acute form of the disease, one must be careful in what he does in the way of x-ray treatment, or he may assist the patient in having acute symptoms.

As to the character of treatment, there are among radiologists three different schools, each advocating a particular type of treatment. Some radiologists treat only the ribs, very little or no part of the treatment being directed to the spleen. Others treat the spleen primarily and pay very little attention to the bone marrow. Still others treat the long bones in small doses and make a short exposure of the spleen at the end of the treatment.

We have tried most of the various methods of radiation and have found that those cases in which treatment has been directed to the long bones, with very little attention to the spleen, are the ones that have responded best and have lived very comfortably for comparatively long periods of time, with a practically normal state of efficiency. We are convinced that this is true. It takes a great deal of time to cover the entire osseous system, but we feel that patients so treated will live longer and enjoy more nearly normal health than those in whom treatment is directed to the spleen alone.

Jenkinson of Chicago, who has treated a great number of these cases, is also convinced that he gets as good results by treating the ribs as by any other method, and has entirely discontinued treatment directed to the spleen. He cites one or two cases that have lived as long as five years, and I am sure that if he will extend the scope of his treatment to include the other long bones he will obtain even better results, certainly more lasting.

A patient came under my observation today whose spleen is so enlarged as to practically fill the abdomen, accompanied by considerable pain. The enlargement of the spleen in this case must have been exceedingly rapid, as she says she has been sick only two weeks. Her blood count shows 80,000 white cells; she perspires freely and has elevation of temperature. I feel certain that under treatment applied to the spleen she would pass out very promptly and that the same thing would occur under large doses directed to the osseous system. In a case of this kind it is best to watch the patient for a while for indications which will help in determining the type of treatment to be instituted. Minute doses to the long bones preferably 200 R. U. has proven the best therapy in our hands.

**Adolph O. Pfingst:** I will even do better than that, I will confine my discussions to the ophthalmoscopic diagnosis of leukemia.

I have a clinical point which I wish to impress. To do so I will ask the permission of the chair to tell a little story. After graduating here and serving at the Louisville City Hospital as interne I entered a small university in Germany with the purpose of acquiring the fundamentals in histology, pathology and bacteriology which had not been in the curriculum here. In my spare hours I attended the eye clinic which was conducted by Prof. Unthoff and Prof. Axenfeld, names with which you are perhaps all familiar, where I did my first work in ophthalmology. On account of the scant clinical material in the small clinic Dr. Axenfeld, a fraternity brother, advised me to familiarize myself with the fundus pictures most frequently encountered in disease by means of a frequent perusal of all of the atlases of fundus pictures in the library of their clinic. In the following semester I matriculated in Berlin and became a daily visitor at the eye clinic. There were eight or nine graduates of medicine hanging around all eager to secure the appointment of assistant to the clinic which was about to be made. One day there appeared for treatment at the clinic a farmer about 40 years of age, because of failing vision. He was very pale, much emaciated and had some glandular enlargement in the neck, giving the impression to a casual observer of one in the last stages of tuberculosis. We were all given the opportunity to examine his eyes and various diagnoses made. I expressed the belief that the man was not tubercular but that the ophthalmoscopic picture indicated that we were dealing with a case of ischemia. This was corroborated by Prof. Uhthoff and by the medical clinic. You will not be surprised when I tell you that I was given the job as assistant to the clinic. I hope that you will not look upon this narrative as an effort at self praise for its object was to impress the fact that the eye grounds in ischemia furnish an important diagnostic sign. which is of some value.

The first thing that impresses one is the yellow cast to the entire retinal background instead of the customary or normal pink. The outline of the disc is not well defined and the retina is somewhat cloudy. Most characteristic are the blood vessels. The tubular arteries of the normal fundus bright red in color and with sharply defined outlines and the light reflex on their crest with which those of you who employ the ophthalmoscope are well familiar, are missing. Instead the arteries appear like ribbons, they have a brown red color, have no light reflex and their edges are not as well defined as are the arteries with the normal red blood in circulation. In the advanced cases retinal effusions at the equator are not infrequent. The effusions appear raised and often have a red lining owing to an accumulation of red cells. All of this presents a picture typical of leukemia. I trust that my experience will impress upon you the value of ophthalmoscopic study in cases of leukemia.

If I am in order I would like to ask Dr. Allen one question. Perhaps you will have noticed in today's associated press report of the death of another of the girls who a few years ago while employed in applying radium to clock dials and through the habit of pointing their brushes with their lips, had contracted radium poisoning. It seems that the radium involves the red marrow of the bones and that these cases all finally succumb to the disease. I would be interested to have Dr. Allen tell us how the blood picture in these cases compare with the blood pictures he has just demonstrated.

**G. S. Bottorff,** (in closing): In closing I would like to emphasize the fact that in atypical cases of leukemia, the diagnosis may be very difficult and repeated blood pictures may be necessary.

**H. Mahaffey,** (in closing): There is a great deal to be said about the different forms of leukemia, and it is true that the differential diagnosis may sometimes be very difficult.

The generally accepted treatment of the chronic types of leukemia today is the x-ray. Radiation will not only materially change the blood picture but will also have an effect upon the size of the various glands and the spleen, and it seems that as the glands and spleen become smaller, the appetite and vitality of the patient increases and the general condition improves.

**F. G. Speidel,** (in closing): In regard to the controversy between radiologists as to whether radiation should be directed to the spleen or bones, or both, I think that, in the presence of a progressive, incurable ailment such as leukemia we should take a rather broad view of a technical question like that, and while it may be commendable to treat patients in one way or the other and to keep statistics of the effects of each, it hardly behooves any one in the present state of our knowledge of the treatment of this disease, to be dogmatic and adhere to any one form of treatment in the face of evidence to the contrary. We are all looking for the Elixir of Life but we have not found it in respect to this particular ailment as well as many others. We must bear in mind that any of the agencies that we use in the treatment of leukemia are palliative, and are designed to relieve symptoms rather than to eradicate the disease, the cause of which is not known.

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**Gastric Secretion in Fever and Infectious Diseases.**—Chang studied the gastric function by the histamine method in 106 febrile Chinese patients. On the aveange there was a decrease of the gastric acidity to one-third of the normal. The total chloride and the volume of secretion showed a similar but less marked change. The decrease of gastric function was proportional to the height of the fever. Anemia and general physical fitness played no important part. Thirty-three of the 106 patients showed achlorhydria, an incidence of 31 per cent. This is about eight times the normal incidence. Fifty-six patients were re-examined in convalescence. Of these, 90 per cent recovered their normal gastric function soon after the disappearance of fever. The incidence of "permanent" post-febrile achlorhydria was only 5 per cent, which is not much higher than is expected in a healthy Chinese population. Infectious diseases are probably not important causes of gastric anacidity. The definite but transitory impairment of the gastric function canot be explained on the basis of dilution, nor can it be entirely attributable to duodenal regurgitation.

# SHALL MEDICINE BECOME SOCIALIZED?*

O. P. Nuckols, M. D.

Pineville.

Many of us have been in the practice of our beloved Profession long enough to have witnessed many changes, most of them for the better and some not so good. In the halcyon days of the past, the Family Physician was just about Monarch of All He Surveyed. He was honored and beloved as physician, friend and adviser to the families of his clientele, as well as one of the outstanding citizens of his Community.

In most instances it was a beautiful and cordial relationship, which will linger long in the memory of our older citizenship. It is true that his task was a laborious and self-sacrificing one, but in the main he carried it with a good natured dignity and courage which we might do well to emulate. He was more or less a pioneer, but with what was known to the Profession, during his time, his successes and his failures would compare very favorably with those of a later day, and I am sure he has kept step and watched with as great pride the many advances in his profession as any who has ever donned the cloth.

I believe that I am not saying too much, when I say that it was upon this solid and sturdy bed rock that our Great Medical Structure has been builded, and if we tear this from beneath its structure, the whole building may be endangered. I am neither a prophet nor a son of a prophet, but the fundamental principles of human nature cannot be changed over night, and those who are sick and distressed need not only a doctor of brains, but one of heart and broad sympathy as well.

The ever moving wheels of time have brought many changes, many fads, and many fancies in medicine as well as elsewhere, until the question which now confronts us is, whether we will depart from the good old custom of the Human Touch between Doctor and Patient, or will we join the Machine Age and the doctor become a mere cog in some great Politico-Socialistic Piece of Machinery with the patient to serve only as the grist.

We have witnessed in our time many new innovations which seemed to be gaining great momentum, until, as the politicians would say, the great Common People were heard from, and, methinks I can hear a mighty rumbling among the rank and file of our great Profession, which must be reckoned with before we become completely moulded into this mighty human cogwheel to be steered by some sinister Social Uplifter or Political Engineer.

Well, just to make a long story short, there has recently come down from Mt. Sinai, almost figurative Thunder and Lightening, a Modern Moses, telling us of the birth of the most wonderful Five Million Dollar Babe. To vouchsafe the modern and up-to-date accouchement of this wonderful Babe there were some 14 or 15 doctors, 2 dentists, 6 or 8 public health officers and professors, 11 members of special interests, such as nurses, druggists, insurance companies, lawyers, embalmers, sociologists, etc., and in spite of all this conglomeration of accoucheurs the Babe was finally born after five years of hard and painful labor, at the pitiful cost of only Five Million Dollars. It seems, however, that there must have been a little quarrel among the attendants, either over the deformities of the child, or the division of the fee, for there was only a part of them willing to sign the birth certificate, however, the majority ruled, as usual, and the Babe was washed and dressed, given a dose of soothing syrup and handed over to the medical profession under the very euphonious name of Medical Care of the American People.

This was a very expensive gift and should not unceremoniously be repudiated, without first inquiring into it's parentage, and its rights to existence. It may be an optical illusion, but to me it seems badly deformed, with marked evidence of traumatic injury during delivery to its central nervous system, and not likelv to live long. The majority who signed the birth certificate make a report regarding its future activities which I will outline in summary form.

Their report recommends:

First: That all medical service, both preventive and therapeutic should be furnished by organized groups of physicians, dentists, nurses, druggists, and such other adjuncts as may be necessary; also, that such groups should be organized around some central hospital for the purpose of rendering both home, office, and hospital care.

It further recommends that all public health service should be extended to the extent that it will be available to all the people. This will call for increased financial support for officials, full-time service health officers, assistants, etc.

It recommends that all the costs be placed upon a group payment basis, through insurance companies, taxation, or a combination of the two methods. They do make the statement, however, that this is not meant to interfere with practice being done upon the fee basis where preferred, but it does not take any very great stretch of the imagination to see how this would work out.

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*Read before he Cumberland Valley Medical Society, London.

They further suggest cash payments for compensation due to time—loss for sickness, to be kept separate and apart from medical care. This to be financed by insurance companies or by taxation. It also outlines a training system for public health officers, nurses, dentists, druggists, hospital and clinic administrators etc., to be paid for supposedly at public expense.

These are just a few of the high points, and the *modus operandi* of its working system would be from top downward. Of course, there would be hospital high-hats, insurance high-hats, and governmental high hats to which the dough-boy or the doctor in the trenches—who would really do all the hard work, would have to render obeisance.

The minority or dissenting accoucheurs make a report of their own, in which they recommend, first, that Government competition in the practice of medicine be discontinued, and that its activities be restricted to the care of the indigent, and to those patients with diseases which can be cared for only in Government Institutions, and such Army and Navy Service as cannot be cared for by the general profession. This report recommends that the Government care be extended to the indigent, with the ultimate object of relieving the Medical Profession of this burden. It further recommends that the corporate practice of medicine, financed by insurance companies and other agencies, be vigorously opposed; first, as being economically wasteful, detrimental to the quality of medical service, and an unfair exploitation of a part of the Medical Profession.

They recommend the development, if possible, by State or County Medical Societies, plans for rendering this service and a united effort to restore the general practitioner to the central place in medical practice.

From this report of the minority, or dissenting attendants, it will be presumed that it was the deformities of the child, to which they objected and refused to sign the original birth certificate, at least their report is much more in line with the wishes and medical thought of the Profession.

We contend that medicine has the right to the control of its own affairs, and that its past history for capacity and efficiency, and its altruistic attitude justifies the claim.

"The Poor we have Always with us," and presume we always will, for Abraham Lincoln said that "God must have loved the poor or he would not have made so many of them."

The problem of medical care for the indigent should be worked out by the Medical Profession, in the future as in the past, so that the relationship between physician and patient should continue to be one of mutual confidence and mutual help, and not of a nickel and the slot type.

We note that no member of the Christian Science faith was on that board, and while we hold no brief for them, nor are we espousing the cause, however, if they can accomplish even a small part of what they claim, just think of what it means for the physician to have the confidence and faith of his patient in the battle for life. All Public Health work should be confined to Public Health Education and preventive medicine and not to public health practice of medicine.

Any form of insurance to provide medical care in sickness is subject to all the obligations of contract practice, but insurance to provide funds to be used in sickness by the patient, with the privilege of employing the physician of his choice, should be encouraged just as any other method of saving for an emergency. We do not believe that the Medical Profession can be charged with being prehensile when we say that we do not want Medical Beaurocracy.

We do not believe that any one can punch a button in Washington City and put in motion a bunch of hired doctors, and render such medical service as the public is entitled to.

Our Profession is now suffering from severe, and I fear in many instances, pernicious, financial anemia, in part due to Governmental and Public Health blood suckers.

In recent years there has been such a mania for Beaurocracy and centralized Government, and as a result fat Government jobs, that we may fear that e'er long we will have to get a permit from some bureau in Washington before we can kiss our wives or spank our babies.

This is plain language, but it does possess the redeeming virtue of being easily understood.

We cannot begin to offer any specific solution of this problem, but it does appear that by and through our State and County Organizations, with such help as may be needed from the Government, the State and Municipalities, as well as charitable organizations, in caring for the indigent, to be administered by and through the Medical Fraternity, the end may be accomplished and the general physician still retain his place of dignity in the homes of the poor, as well as the more well to do.

We have no special fight to make, no axes to grind, but feel that we would be derelict in duty not to contend for a free and independent profession and for the traditions of the past. Any form of machine will destroy ambition, dull the edge of intuition and initiation and slow down the onward steps of medical progress. For after all

"It is the human touch in this life that counts,
The touch of your hand and mine;
Which means far more to the fainting heart,
Than shelter and bread and wine,
For shelter is gone when the night is o'er,
And bread lasts only for a day,
But the touch of your hand and the sound of your
Voice sing on in the soul always."

Any one might know that those beautiful lines, which have gone 'round the world, were penned by some good doctor, who had sat by the bedside of his patient and watched through tear dimmed eyes the flickering lamp of life as it burned very low, and then with the gentle touch of his hand, caught again the glint of confidence and hope as it radiated from that almost lifeless face, and saw once more the flickering light of life as it brightened and slowly came back to its full glow again. The doctor who cannot thus inspire confidence and hope will oft times be compelled to surrender his patient into the hands of the Grim Reaper and retire from the field of medical combat in humility and in sorrow.

So, my Friends of the Medical Profession, concluding, let me say that although we may not be financially able to furnish a Five Million Dollar funeral for the Babe, we can in deep sympathy and sorrow mingle our tears with the parents and sorrowing friends of the dead, strew a few flowers upon the grave, thus rendering the last tribute of respect, in keeping with the great humanity and dignity of our noble Profession.

Then with contrite hearts as we turn away from the grave-side in deep meditation upon the marvelous and sacred history of our Great Profession, may we resolve in our hearts that it may never become commercialized, inhumanized, socialized nor paralyzed.

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**Familial Occurrence of Leukotrichia Annularis**—Reyn reports eight cases of pili annulati in four generations of one family. In the literature up to 1921 he found only twenty cases of "ringed hair" and considers it likely that because of its inconspicuous nature and the comparatively rare complications this anomaly is frequently overlooked.

# ACUTE INTESTINAL OBSTRUCTION*

CHARLES BARON, B. S., M. D.

Covington.

It has frequently been stated that the subject of appendicitis needs a new discussion every five years or less, for in that way only, can we ascertain whether progress has been made in one of the most frequent surgical conditions. I feel that this holds true for intestinal obstruction, for in the past two years there have been an unusual number in this vicinity of Northern Kentucky, with results that warrant us to pause and take stock. Forty-three years ago it was a major subject of discussion at the American Association of Physicians and Surgeons by Reginald Fitz and Nicholas Senn, and the subject is just as alive and commanding of our attention today as it was then. It is recognized as the gravest form of abdominal surgery by Smithies, a condition which causes a surgeon most concern by Ochsner, and yet its surgical results are still deplorable despite its discussion since 1888 as stated by Wangensteen. It has been said by Bower, "If the gross mortality is to be decreased in the United States, the true conditions in hospitals must be reported," and it is in that spirit that this paper is presented.

This paper is based upon a study of the surgical records of The William Booth Memorial Hospital of the years 1921 to 1932 to date, a period of 12 years in which all cases of acute intestinal obstruction have been studied. The total number of cases collected were 60, twenty-six of which occurred in females and 34 in males, 43.3 per cent and 56.7 per cent respectively. The average age was 38.4 years. A little more than half occurred under 40 years of age. The oldest was 82 years and the youngest 3 months.

The most important factor in the prognosis of intestinal obstruction is the time factor. Van Beuren stated, " the longer a patient with intestinal obstruction lives before operation, the sooner he dies afterwards." Miller states that the mortality rises approximately 1 per cent for each hour of procrastination. The figures that I found in the series presented, seem to substantiate these and other similar opinions.

| Time of appearance | Number | Mortality | Per Cent |
|---|---|---|---|
| Within 24 hours | 13 | 1 | 7.6 |
| Within 24-48 hours | 20 | 14 | 70.0 |
| Within 48-72 hours | 9 | 6 | 66.6 |
| After 72 hours | 13 | 12 | 92.3 |

## SYMPTOMS

The first symptom of 42 patients was

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*Read before the Campbell-Kenton Medical Society.

pain, pain and nausea 2, nausea 2, constipation 2, vomiting 3, nausea and vomiting 2, distention 1 and local swelling 1. Nineteen complained of the pain being sharp, 6 cramplike, and 1 knife-like. Six stated that the pains were paroxysmal. Forty-two vomited and only 12 had accompanying nausea. In 11 the vomiting was present from the beginning and continued to the time of operation. In 2 the vomiting was characterized as explosive and in 1 it was stated to be exhausting. In 7 the vomitus was fecal and of these, all died. One patient reported coffee ground vomitus. Hiccoughing was present in 1 case. Thirteen had acute constipation and 1 experienced bloody dysentery.

### Past History

Seventeen patients were given cathartics and enemas before admission to the hospital and 14 were subjected to the same treatment after hospital entrance. I leave the question of how many patients were unwittingly given the final coup de grace by this means. I quote from Wangensteen. "How many operations for acute intestinal obstruction are deferred because the administration of an enema is accomplished by the return of gas and feces. Every physician knows that the bowel distal to the site of obstruction is anatomically normal. Dogs with complete severance of the ends of the gut expel enemas with the return of gas and feces; when a small rubber balloon is placed in the loop distal to the obstruction, peristalic activity of the same character as observed in the normal intestine is obtained and following the subcutaneous administration of eserine or intravenous infusion of hypertonic saline an increase in intestinal activity commensurate with the response of the normal dog's intestine follows. The bowel distal to the point of obstruction is therefore physiologically as well as anatomically normal. Why shouldn't patients with acute bowel obstruction expel gas on the administration of an enema? If the obstruction is partial, gas will be returned as enemas are given: in high and complete obstructions, until the gas in the bowel distal to the obstruction has been evacuated. Only in low complete obstruction is early information obtained through rectal irrigations."

Twenty-four of the patients gave a past history of previous operations of which one-half were for appendicitis. Recently Gerster reiterated the growing series of post operative intestinal obstructions caused by adhesions between the omentum and the posterior parietal peritoneum or the mesentery of the small intestine, directly traceable to failure to pull the omentum through the appendectomy wound and replace it superficially to the intestine before the peritoneum is closed. In Smithies recent series of 56 cases, more than 60 per cent of the patients had from one to as many as seventeen abdominal operations. Our series presents an incidence of 33 per cent of bands and adhesions to give the impression that previous abdominal operations were responsible. However of the 20 in our series, 5 gave no history of previous operation. Since anatomists such as Harvey, and Bryant, and surgeons such as Taylor, Homans, Bainbridge, and Widere, have shown frequently omental, mesenteric and intravisceral bands or adhesions are present in the embryo and new-born and adults of the congenital origin, and with the recent substantiation of this by Kantor through exhaustive clinical and roentgenologic study, one must be cautious in ascribing the presence of such obstruction producing agents to previous surgery. In addition, to the literature has been added another growing factor by Edwards, Brown, Cutler, and even included in this series, namely, mesenteric defects, resulting in herniations of bowel, omentum, and mesentery. Furthermore, in this series of cases 26.6 per cent were due to strangulated hernias, thus further greatly obviating previous operations.

### Physical Findings

Eighteen were brought in by stretcher, 17 were in a febrile condition and only 4 were in distinct shock. 20 to 33.3 per cent presented an elevation of temperature at entrance while 9 or 15 per cent presented a subnormal temperature. Thirty-seven had an entrance pulse of over 84 while 30 showed a respiratory increase over 20. Only 1 presented shallow breathing. The following findings are given in their order of frequency. Tenderness, 31 or 51.6 per cent; abdominal distention, 31 or 51.6 per cent; pain marked features, 13, or 21 per cent; physical restlessness, 13 or 21 per cent; mass felt, 11 or 18.3 per cent; mental restlessness, 10 or 16.6 per cent; emaciation, 9 or 15 per cent; rigidity, 8 or 13.3 per cent; flush of fever, 4 or 6.6 per cent; dehydration, 3 or 4.1 per cent; free abdominal fluid, localized bulging, visible peristalsis, 2 or 3.3 per cent each. The figure for mass felt must be recognized as being high, due to the number of strangulated hernias.

### Laboratory Findings

Of those subjected to laboratory work before operation, 10 showed albumin in the urine while 11 did not. In 14 blood examinations, the white blood count was elevated in 10 and normal in 4. One showed a slight anemia. In the only case in which the blood chemistry was done, the urea and blood chlorides were normal, readily understood, for it occurred in a low obstruction involving the colon. However, it is well known through the works of Haden and Orr, Gatch, Trussler and Ayers, Burgess, Walsh and Ivy, that there are characteristic blood changes in intestinal obstruction, i. e., decrease in plasma chlorides, increase in the carbon dioxide combining power of the plasma, and an increased urea nitrogen. Furthermore, it is believed by some observers that certain if not all of the symptoms and signs in ileus are dependent upon these changes. According to recent experiments by Samarin, it was demonstrated that there are more chemical changes in the blood in high intestinal obstruction, i. e., in obstruction of the pylorus, duodenum and the small intestine. In supra-intestinal and low intestinal obstructions the changes are fewer and they are not so prominent. According to Benedict, Stewart, and Cutner when the chloride and water balance is maintained, the length of survival of an obstructed dog seems to depend almost entirely on the exact level of the obstruction below the bile papilla, and the fat reserve. Samarin believes that there are two main causes that provoke pathologic changes in ileus: the abnormally increased secretions and excretions and hunger. Losses of gastro-intestinal contents always occur during the vomiting that accompanies ileus. With vomitus there is a loss in secretions, water, salts, ferments and the rest of the gastro-intestinal contents. With excessive loss of secretions, an excessive dehydration of the system take place, especially the latter, which is assisted by the excessive elimination of the chlorides in the urine. The mechanism of hypochloremia in high intestinal obstruction will be clearer if one takes into consideration the well established fact that the greatly distended intestines lose their power of absorption. In an experimental study of the effect of intra-intestinal pressure on the circulation in the wall of the intestine, Gatch, Owen and Trusler noted that as the pressure was increased the circulation became slower and when the intra-intestinal pressure became equal to the systolic blood pressure the circulation in the intestinal wall stopped. On this account it will also be easier to understand why there is a normal content of chlorides in the blood in low intestinal obstruction; because absorption in these cases gets disordered only at the end of the life of the experimental animal. In obstruction of the cardia or oesophagus there is no vomiting; there is no loss; therefore there is no decrease in the level of chlorides in the blood. Extreme dehydration leads to rapid coagulation of the blood, which in turn brings on excessive increase in the nonproteins. The alkali reserve also increases, being the direct consequence of the loss in chlorides. The second cause that provokes highly complex changes in an organism with a complete obstruction of the gastro-intestinal tract is hunger, partial or complete. These facts clearly demonstrate that in low intestinal obstructions there are still going on some processes of assimilation, no doubt without any disorders; however complete hunger begins only when there has been established a reverse peristalsis, in the case the blind tract is filled to the maximum. The physiologic process of food movements from the oral to the aboral end changes to a pathologic one, from the aboral to the oral end. There were observed also such phenomena as distention of the intestines and the arrest of absorption; hence the process of assimilation is out of the question and there is complete hunger. The higher the obstruction, the sooner begins the hunger.

An important procedure in the early recognition of bowel obstruction is the visualization of gas in the small intestine by x-ray. First advocated by Schwartz in 1911 and introduced in this country by Chase, it has been emphasized that the presence of abnormally large collections of gas in the bowel are indicative of some obstruction. Whereas gas is normally present throughout the intestinal tract, it is visualized on the x-ray film of the adult's abdomen in only the stomach and colon. The intimate admixture of gas and fluid in the small bowel precludes its demonstration. During the first two years of life, gas may be regularly identified in the small intestine on the x-ray film, but visible gas in the small intestine of the adult is synonomous with intestinal stasis. Within 4 to 5 hours after the establishment of simple obstruction in the dog, gas may be definitely visualized in the small intestine. In the presented series in which visualization was done, 8 were positively diagnosed, 4 suggested obstruction, and in 2 the diagnosis was missed. It was noted in addition that three-seventh of the patients were subjected to a delay ranging from 5 to 115 hours. Despite this most modern aid, patients were subjected to a wait as long as 60 hours after a positive diagnosis was made.

## DIAGNOSIS

As far as could be ascertained, all patients entering the hospital with an entrance diagnosis of intestinal obstruction came to the operating table. Of the 60 in this series, 51 were definitely diagnosed as intestinal obstruction. Of the 9 that were missed, one was diagnosed as post-operative adhesions, 3 appendicitis, one a hernia not recognized as being strangulated, one carcinoma of the duodenum not recognized as an obstruction, one nephrolithiasis and in 2 cases no preoperative diagnosis was made.

### TYPES

The operative conditions found were as follows: Adhesions 16; bands 4. These two conditions alone composed 33 per cent of the entire series. There were 16 cases of strangulated hernia, making 26.6 per cent of all cases. These were divided as follows: inguinal 6, femoral 3, scrotal 3, umbilical 3, ventral through an old abdominal scar 1. There were 7 cases of intussusception, 4 of carcinoma, 1 of volvulus, 3 due to appendiceal abscess, 1 of infectious granuloma, and 1 due to a mesenteric defect resulting in an intra-abdominal hernia of mesentery and subsequent volvulus of the affected intestine. In only 1 case was the affected bowel gangrenous and in this case it was removed and while the patient died, it was not due primarily to the resection.

The portions of the gastro-intestinal tract involved were as follows: ileum 9, designated only by small intestine 8, caecum 6, sigmoid 2, pylorus of stomach 1, jejunum 1 and colon 4. In 2 cases the old abdominal wound was involved and in 2 cases the omentum was involved.

### TREATMENT

In 30 cases ether was the anesthetic of choice, gas 4, gas and ether 1, spinal 10, local 15. The post-operative condition was declared as good in 29, fair in 5, poor in 9 and bad in 4.

In 17 cases drainage was instituted, of which only two lived, both of these being intussusception. As far as could be ascertained, in 5 the bowel was either torn or punctured during operation and while 4 of these were drained, all of the 5 died. It is felt in a small measure that this somewhat substantiates the recent experimental work of Buchbinder, Droegemueller and Heilman have done in the effect of drainage upon experimental diffuse peritonitis. Since in many cases a diffuse peritonitis results in intestinal obstruction, at times from accidental perforation of the gut or tearing of the intestines upon separating adhesions and bands, it is felt that the subject of drainage is important. These authors state that one cannot question the necessity for drainage in local peritonitis. In a virulent and rapidly spreading diffuse peritonitis, we believe that drains of any kind are not only useless, but increase the degree of contamination and the rapidity of spread in territory beyond the zone of involvement. We believe that this is even more true in man whose peritoneum reacts to a lesser degree of soiling that does that the dog. Clinically we know that a serious spreading peritonitis may be set up by the careless handling of a local process, even when the contamination is no more than that of a finger or a tampon pushed into the free cavity. If we were to state the clinical application of our experimental observations we would say first, that in a spreading peritonitis the focus should always be removed. Second, that the removal of the exudate present at the time of operation is very important, as resorption of a large amount of toxic exudate contributes greatly to the morbidity and to the mortality. Aspiration is the most satisfactory method of accomplishing this, since it can be done completely without contamination of unsoiled territory and it cannot be done with a drain. Third, we believe the abdomen should be closed and the abdominal wall down to the peritoneum drained to prevent phlegmon of fascial and subcutaneous spaces. Their experimental conclusions were as follows: (1) In an experimental spreading peritonitis, such as follows bowel perforation, and is accompanied by a mortality of over 90 per cent, removal of the septic focus and closure of the abdominal reduces the mortality to 58 per cent. (2) The institution of soft rubber drainage in such an experimental lesion is followed by a mortality of 100 per cent. (3) The duration of the effectiveness of a drain is not modified by the character of the exudate. (4) The mere presence of a purulent exudate at a distance from the primary focus does not justify the diagnosis of general peritonitis. (5) A drain does not extraperitonealize a zone already the site of spreading infection.

In 5 cases of this series, the bowel was resected. However, none survived. In 17 cases in which an enterostomy was performed, none survived. The seemingly utter inefficacy of this procedure is largely due to the fact that enterostomy was performed on the hopeless case and as a last resort in many who were moribund. However, an abundance of evidence substantiates the value of this procedure. As early as 1897, Heidenhain advocated enterostomy in acute ileus, while McCrae believes he was the first to advocate jejunostomy or enterostomy during the operation where there is the slightest evidence or anticipation of general peritonitis involvement developing after the operation. Haden and Orr have reported the successful use of enterostomy performed in the ileum in cases of peritonitis. Experimentally, they were able to show that simple enterostomy did not prolong the life of an animal, but that enterostomy plus the addition of 1 per cent sodium chloride hypodermically, tripled the life of the animal. They state, "When any doubt exists concerning the value of enterostomy, it should be done.'' Van Beuren from a study of the cases of acute ileus operated in twelve years at the Presbyterian Hospital in New York, states that ''Enterostomy done at the right time in the right way is the most effective means we have at present to relieve and prevent intestinal overdistention and anemia.'' Bowen uses it in all suppurating conditions in the abdomen where there is actual or threatened peritonitis.

Recognizing the importance of chlorides, most patients in the last two years have been given intravenous saline solution. Pierini believes that in simple occlusion without damage to the bowel wall the principle cause of death is the disturbance of the equilibrium of the body fluids resulting from the loss of blood chlorides. Included in the post operative treatment were the use of such drugs as pituitrin, given in 4 cases, and eserine in 1. None of these seemed to be relieved. In the laboratory of Cutting, Gage, and Ochsner, it has been found that, with but few exceptions, both pituitrin and pitocin, exert a depressing effect on both the normal and the obstructed gut, as evidenced by the cessation of intestinal movement and loss if intestinal tone. Eserine however, in fairly large doses seemed occasionally capable of not only increasing the intra-intestinal pressure by increasing the intestinal tone, but also increasing intestinal movement. Hughson and Scarff found that intravenous administration of a hypertonic sodium chloride solution produced violent peristalsis in animals. This was corroborated by Ross as well as in the laboratory of Ochsner. Keusenhoff employs this method clinically to stimulate the inactive intestine with 10 to 20 c. c. of a 10 per cent solution of sodium chloride, care being taken that the injection is not made paravenously. In mild cases he claims the effect is usually prompt; if it is retarded, from 125 to 150 c. c. of a 20 per cent solution is given by rectum.

Only 1 patient underwent a blood transfusion, and that patient twice. Gastric lavage was performed in 6 cases. Ochsner believes that frequent gastric lavage is imperative. Smithies feels that gastric or duodenal lavage by the Rehfuss tube should be instituted early.

### MORTALITY

In the presented series of 60 cases, there were 38 deaths, a mortality rate of 63.3 per cent when we subtract the 16 cases of hernia and 7 cases of intussusception the mortality rate is decreased to 61.6 per cent.

In 1900 Gibson reported 1000 cases, of which the mortality rate was 43.2 per cent. In 1925 Van Beuren and Smith reported for the previous 25 years, 1089 cases with a mortality of 41.8 per cent. In 1929 Burgess reported 1042 cases excluding hernia and idiopathic intussusception with a mortality of 57.9 per cent. DeCosta places the figures between 40-50 per cent. At the 1930 meeting of the A. M. A., Smithies in a series of 56 cases reported a mortality of 41 per cent. At the same meeting Abel stated, ''A study of accumulated statistics reveals what is common knowledge, to-wit, that while acute intestinal obstruction carries an inevitable mortality, the greater portion of the mortality may be justly attributed to delay in recognition and to tardiness in the institution of appropriate surgical treatment.'' However, in every statistical study of bowel obstruction, it is apparent that the results of early operation compare favorably with those of other acute abdominal disorders.

### CONCLUSIONS

1. A series of 60 cases of intestinal obstruction which appeared in the last 12 years is presented. Of these, 63.3 per cent resulted in death. From a comparison of the presented figures resulting in the past few years, it is felt that they do not compare favorably with other series.

2. A patient suspected of having intestinal obstruction should be carefully watched in a hospital, for early operation is imperative. Procrastination appears decidedly to be the citadel the surgeon must attack if the altogether too high mortality rate of intestinal obstruction is to be lowered.

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## THE ROLE OF THE COUNTY MEDICAL SOCIETY*

MILTON A. GILMORE, M. D.

Hopkinsville.

It is almost like carrying coals to Newcastle to address such a well organized medical group upon the place that the county medical society plays in medical organization, and yet I hope that there may be those here from counties in which there is no active society, or those who for various reasons have neglected their own group.

Today, when doctors meet informally, the three topics most discussed are: Contract Practice, the Wilbur report, and the all important question, ''When will practice improve?'' It is not my purpose to discuss these either informally or otherwise, but to remind you that the one place to settle these problems for your own satisfaction is in your county medical society. The one thing that affects all of us equally vitally is the problem of local medical organization. Following the rather recent amount of newspaper publicity which has been given the doctor and the medical organizations it seems not amiss to reconsider just what our societies are and how we can best improve them for our mutual benefit.

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*Read before the Third District Medical Society.

Medical organization as we know it in the State of Kentucky is three fold. There are the county societies, the State Medical Association and the American Medical Association. Of course there are numerous special societies and groups, but in the main the three enumerated affect us all. Membership in the latter two is dependent upon membership in the first, hence the county society may be taken as the foundation or the basis of our medical organization. If we were to examine the constitution of any county medical society it is likely to read as follows: The purpose of this society shall be to unite with the other county medical societies to form the medical association of the State of Kentucky, and through it with other state associations to form and maintain the American Medical Association: to bring into one organization the physicians of said county, so that by frequent, full and frank interchange of thought, experience, and opinion, medical knowledge and progress may be extended and the opinions of the medical profession in all scientific, legislative, public health, economic, and social affairs may be advanced so that the profession shall become more useful to the public in prolonging and adding comfort to life.

Certainly that is an ambitious program for any group, and to undertake to fulfill the tenets of these aims requires excellent cohesion among the members. It requires first of all that all the members of the profession residing within the county become members. Of course in this state there are many counties with insufficient members to form a workable society, and such are best served by some type of combination with their neighbors.

Secondly, it requires regular stated meetings, so that the membership of the society may plan in advance upon their attendance. No group however well organized, however large can hope to be successful unless there is regular and good attendance.

Next it requires a definite program to be accomplished so that there may be a goal toward which to work, not only for the society as a whole but for each individual member. Lastly it requires some form of publicity, both to the public about the accomplishments of the society and health in general, and to the profession about the needs of the public and the role of the society.

If I may be allowed the privilege of illustration by telling of the activities of certain county medical societies, I hope to show you how some have used this medium to a solution of the problems that surround present day practice.

Christian County has a professional roster of thirty-four practicing physicians. Thirty-one of these are members of the county medical society. To secure such a majority of membership it has been necessary to interview many of them concerning their membership. This has been done by the officers of the society and by individual members. It is endeavored to draw a recalcitrant physician to meetings by special invitation, not only of one member but several. Sometimes he is called for and brought to the meeting by a member. Several such attentions usually suffice to show him that the society is worth while and that he is needed. The average number of meetings of this society is twelve yearly. The average attendance is about thirty-five. A definite date is chosen for the meeting each month, and several days in advance of this date cards are sent to each physician in the county announcing the program. In order to further stimulate interest the physicians of surrounding counties are also invited. Knowing that visitors will be there often assists in bringing our own men too. Evening is chosen for the time of the meeting, both because it will interfere less with the duties of the physicians, and also because the dinner preceding the meeting is a valuable drawing card.

The first purpose of the society as outlined in the constitution is to extend and promote medical knowledge through the frequent full and frank interchange of thought. Having secured the attendance of the physicians, one must next present the program in a suitable manner. Meetings need not be dry, stale, musty affairs. The social contact of the men, the promotion of friendships, and the easing of competitive antagonisms is to be considered upon a par with the advance of medical information. For this reason many societies employ a social hour preceding or following the scientific program. It is well to devote one or two meetings a year to the purely social side of life with no scientific program at all. However the medical paper is usually the motivating influence at the meeting. Some societies have their papers presented entirely by outside talent, others entirely by home talent. The logical course seems to be between these two extremes. Montgomery County, Tennessee, society has a method which seems to create much interest and benefit among the men. A course of study is planned to run quarterly upon several subjects. Various angles of the question are discussed by the local men and if possible cases shown. The entire subject is thoroughly covered at two of the three meetings. At the third meeting an outstanding speaker is invited to present the opinions which he may possess upon the subject to the membership. At this latter meeting there is no discussion by the physicians. Another society has subjects presented by outstanding physicians from out of town and knowing in advance his subject several home physicians are designated to review the paper. Both methods are useful, the first is more thorough, the latter covers the greater number of subjects. The greatest good comes to those who participate in the discussions, and frequently local men decline to do so, but finesse, deference to opinions, and interest in the problems of these individuals will frequently bring them to the front as participants.

The county medical society must also solve problems relating to the public health, economic and social life of the people of its community. To draw an illustration let me relate how the Marion County, Iowa, society solved the perplexing problem of medical services to the poor. There as elsewhere, service to the poor were on a hit or miss basis. Physicians were employed to treat the indigent, and attend the county poor farm, but as elsewhere the greater majority were treated by the rank and file of the profession, without remuneration. The fee question was discussed at the county meeting and the following plan evolved. The society agreed to allow one indiviaual to bid for the attention required by all indigents at a fixed sum per year. This was fixed at the sum usually spent for such relief and was promptly accepted. Next each member of the society agreed to do his share toward assisting in caring for these people, so that that doctor nearest him could be called by the patient. All claims for services so rendered are filed with the county secretary and audited yearly. The bills for services rendered by the individual physicians are carefully supervised and itemized. They are made upon the special county form, and at the end of the year pro rated among the members of the society for payment. Of course this plan requires some supervision and investigation by the social service system with which they co-operate, and a case limit of charge. Nevertheless it has brought to those men some remuneration for their charity work, freedom to practice their regular patients, and has brought to the indigents of their county real medical services. The members of the society are enthusiastically for their plan, and are urging its extention elsewhere.

Another county medical society, that of Milwaukee County, Wisconsin, has entered into a scheme to provide care for the high cost medical cases. Under their plan the county society organized under professional and lay boards a group insurance plan. Each person is assessed a regular stated fee which provides for medical service, and to a certain extent the cost of hospital care. Members of this society are free to choose from the members of the county medical society for their professional advisers and from the hospital associated with the group. This method has found considerable favorable reception elsewhere. The nearest place with which I am acquainted that such a plan is in use is at Princeton, Ky., where it has been satisfactorily used to help maintain a small hospital. Unfortunately at this place it has not the co-operation of the county medical society.

The education of the public in matters pertaining to public health, the prevention of disease, and the proper way to go about securing competent medical care, rests largely with the medical society. We are all aware of the extensive programs planned by the American Medical Association in this respect. The discussion of the program by the officers of the association strongly urged the co-operation of the local society. In some of the larger cities, notably Detroit, Cincinnati and Pittsburgh, the local medical organizations have put on programs with the co-operation of the radio stations located there. Under these plans many physicians made short talks on matters of general interest relating to health. No specific treatment was ever mentioned, the entire procedure being a propaganda to educate the public in the proper manner of caring for health and securing competent medical care with the minimum expenditure. Any society so minded can secure from the American Medical Association a group of articles intended for release to newspapers. Many newspapers are glad to run such articles for the general interest they contain. It is surprising how much the average person will learn from these articles, and how implicitly he believes in them. It serves to strengthen his confidence in the medical profession as a whole when he understands some little of the problems surrounding the practice of medicine.

We are all familiar with the tremendous educative program now being carried on within the borders of our own state, by the so-called county health units. In reality these units are under the direct control of the local society, and much or little can be made of them as the members of that society may desire. Certainly it is a wonderful advertisement of medicine, not of any particular group or branch of medicine. It serves to bring children to realize the importance of health, which will be a powerful factor in future practice of medicine.

Another manner in which the work of the physicians and the programs which we discuss so much can be brought to the attention of the public is by means of the Ladies' Auxiliary. Every county medical society should sponsor and assist the auxiliary. These ladies naturally become more interested in their husband's work and problems. They discuss it with friends and neighbors, and bring it to the attention of their clubs. They organize clinics for the care of children, expectant mothers, and many other worth while services to the community. They will do more good in the control of quackery than most any agency. Their efforts are extensive in the prevention of self treatment. Certainly the auxiliary is well worth the effort it requires for the county society to organize and direct its action.

In the Wilbur report many pages are devoted to such subjects as the control of specialism, medical education, nursing problems, and hospital management. While much can be done on a national scale to correct the evils shown to exist at the present time, there are many things which we must solve and attend locally. No form of relief has been suggested to date which will so adequately serve to correct these evils as the concerted action of the physicians themselves. We must realize our responsibilities in this respect. It has been freely stated that physicians are the poorest group of business men in existence. Some of that may arise from the fact that we are more sympathetic with those whom we treat than any business man could ever be. That is part of the necessary make up of a real doctor. We must preserve the high type of individual contact with the patient which has always existed in American medicine, if we are to prevent the sword which so many say hangs over our heads, the sword of state medicine.

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**Central Regulation of Red Blood Picture.**—Salus describes the clinical histories of five patients with polyglobulism. In three the condition concurred with narcolepsy, in one with postencephalitic obesity and slight parkinsonism, and in the fifth with sarcoma of the frontal brain and mesencephalo-hypophyseal symptoms. He thinks that the concurrence of narcolepsy and polyglobulism, or of narcolepsy, polyglobulism and mesencephalohypophyseal disturbances indicates that in the gray matter of the mesencephalon there is a center which regulates the formation and the disintegration of the erythrocytes. He cites other investigators whose observations indicate such a regulatory center.

## CHILDHOOD TUBERCULOSIS*

JAMES W. BRUCE, M. D.

Louisville.

Childhood Type Tuberculosis is the term selected by the American Sanitorium Association in 1929 to describe the diffuse or nodular lesions of the lungs and associated tracheobronchial lymph nodes that result from a first infection of the pulmonary tissue with the tubercle bacillus. This first infection may not occur in childhood although it nearly always does.

The pathogenesis of childhood type tuberculosis can be described as follows. The tubercle bacilli enter the lung via the respiratory passages and form the first tubercle. Within a few weeks the tissues of the patient become sensitive to tubercular toxin and the tuberculin skin test becomes positive. Around the initial tubercle there forms an exudate which may be quite extensive and which gives the appearance in the x-ray film of pneumonic consolidation. The exudate gradually, in the course of months, drains off into the tracheobronchial lymph nodes, leaving no scar behind except at the location of the original tubercle. This spot frequently calcifies and leaves a permanent scar. The tracheobronchial lymph nodes which absorb the exudate from the lungs become swollen and some of them become caseous and ultimately many of them calcify. They are not visible to the x-ray however unless they are calcified or unless they are large enough to extend beyond the mediastinal shadow. Tubercle bacilli may remain quiescent in these lymph nodes for the rest of the person's life and never give further evidence of their existence. We believe that this is the course of childhood type tuberculosis in the vast majority of cases.

The symptoms while this process is going on are usually remarkably insignificant. There is little or no fever, little if any cough, the state of nutrition may be excellent and a steady gain in weight may take place. The symptoms that usually bring the child to the Doctor are fatigue and irritability and lack of normal endurance. Night sweats are not symptomatic of the childhood type. Physical examination usually reveals nothing. The tuberculin skin test is usually positive. The x-ray will show an amazing amount of parenchymal involvement if the exudate about the original tubercle is present or is in process of draining into the tracheobronchial nodes. If the exudate has already drained into these nodes the x-ray will show the nodes if they are calcified or if they extend beyond the mediastinal shadow. It may also show the primary tubercle.

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*Read before the Medico-Chirurgical Society.

The diagnosis of childhood tuberculosis is made on the history, the skin test and the x-ray. Barnard, Amberson and Loew in a study of 1000 school children in New York City made skin tests and x-rays of the entire number. 673 gave positive skin tests and 184 had tuberculous pulmonary lesions demonstrable by the x-ray. The summary of their x-ray observations is particularly interesting

"If we had x-rayed only the 673 who had positive skin reactions we would have discovered 173 of the 184 with pulmonary lesions demonstrable by x-ray, all but 11."

If we had x-rayed only the 128 who were 10% or more below average weight we would have discovered only 18 of the 184.

If we had x-rayed only the 35 who on very careful inquiry were found to have been exposed to pulmonary tuberculosis we would have discovered 8 of the 184. 1 out of 23.

If we had selected for x-ray examination only the 24 in whom suspicious pulmonary signs were detected on physical examination we would not have found one.

Childhood type tuberculosis in the great majority of cases is a very mild malady. Most of the patients never see a doctor. Those that show symptoms usually respond readily to a few weeks rest in bed and an easy routine of living for months afterward which does not permit fatigue. The disease has a marked tendency toward spontaneous healing.

A small percentage of the cases however do not behave in this benign way. When childhood type tuberculosis goes bad it goes very bad. Caseous tracheobronchial lymph nodes sometimes burst into a blood vessel and form miliary tuberculosis. Miliary tuberculosis is nearly always fatal. Tuberculosis meningitis is the commonest form of meningitis during the first two years of life and is the usual cause of death in fatal cases of tuberculosis during that period. Occasionally the parenchymal exudate about the primary tubercule does not drain benignly into the tracheobronchial glands. Caseation and Cavitation may take place instead and sometimes bronchopneumonia occurs. We occasionally see the destructive adult type in children which has a bad prognosis.

Childhood type tuberculosis was once thought to be very serious because of the presence of these killing forms of the disease i. e. miliary tuberculosis, meningitis and bronchopneumonia. However, we now know that these forms fatal though they are, make up but a small percentage of children affected by the Tubercle bacillus. McPhedran and his Associates skin tested 4,107 school children in Philadelphia and found 38 per cent positive at 5 years, 71 per cent positive at 10 years and 81 per cent at 15 years. Following up the positive reactors with chest x-ray studies they found 25 per cent showed positive x-ray evidence of disease. When we compare these figures indicating widespread incidence with the small number of cases of fatal disease, we are forced to admit that childhood type tuberculosis has a marked tendency to spontaneous healing.

In giving a prognosis of tuberculosis the age of the patient is of prime importance. Miliary tuberculosis and meningitis are fairly common in the first year, less so in the second and much less so thereafter until by the fifth year they are quite uncommon. Tuberculous bronchopneumonia is always a rare disease in childhood at any age. From 5 years to puberty tuberculosis carries a low mortality. During puberty the adult type becomes common and the mortality rises rapidly. The younger the infant is when infection takes place the worse chances it has for survival. Gaul's figures on this point are interesting. He studied the fate of 404 tuberculous infants for a period of 1 to 8 years. 29 of the 404 were infected during the first 6 months. Of these 5 or 17.2 per cent died; 73 became infected during the second half year of life of whom 5 or 6.8 per cent died; 77 became infected during the first half of the second year of life of whom 5 or 6.5 per cent died. None of the infants who were infected after they were 18 months old died during the period of observation.

What effect has arrested childhood tuberculosis upon the chances of developing the adult type later? It has been the generally accepted view that an attack of childhood tuberculosis confers a certain degree of protection to the individual against the adult type. In support of this is the work of Heimbeck in a Tuberculosis Hospital in Oslo, Norway. Skin tests were done on the entering classes of Nurses from 1924 to 1927, 220 gave negative reactions and 200 gave positive reactions. In the course of one year practically all the negative reactions had become positive, 51 nurses developed tuberculosis, only three of which were among the original positive reactors, the remaining 48 cases occurring in the negative reactors. He concluded therefore that a positive skin test was an indication of immunity.

On the other hand strong evidence has been brought forward recently by Rathbun and by Stewart and Meyers that an attack of childhood tuberculosis renders an individual much more susceptible to a later attack of the adult type. According to their figures childhood tuberculosis is found in 50 per cent of High School students who develop adult type of tuberculosis, whereas childhood tuberculosis is found in only three or 4 per cent of the High School population at large. Time and further study will have to determine which of these opposing views is correct.

A very important point in the prognosis of childhood tuberculosis is the success of the search for the source from which the disease came. This source must be found if possible and contact with the child must be cut off. The search for the source must be carried out to all contacts such as servants, aunts, uncles, grandparents, etc. Servants, particularly if colored, are frequent sources of infection. It has been discovered recently that the chronic bronchitis that many old people have is often tuberculous. These old people rarely die of tuberculosis themselves but they broadcast the bacilli. Old people are fond of children and kiss them a great deal. Old people as a rule resent being examined and refuse to believe it when told they have tuberculosis. Such cases present some of the most delicate situations we have to face.

### CONCLUSIONS

1. Childhood type tuberculosis is generally a very mild affair and most of the cases never seek medical advice.
2. Unless the patient develops miliary tuberculosis or meningitis, both of which are rare after the third year, the chances of reaching puberty are excellent. Tuberculosis of puberty is generally the adult type and has a high mortality.
3. The diagnosis of childhood tuberculosis rests upon the tuberculin test, the x-ray and the history. The physical examination rarely brings out much information.
4. It is most important in treatment to discover the source of contagion and cut off contact.
5. Whether the presence of childhood tuberculosis bestows immunity against or predisposition toward adult tuberculosis is still a matter of dispute.

### DISCUSSION

**Oscar O. Miller:** Dr. Bruce speaks of the primary tubercle as the result of inhalation infection. This is not necessarily true. We speak of it as a first infection because the primary tubercle is the first manifestation in the lung but it is now recognized that there are two types of infection, one by inhalation and one by ingestion. In the latter form the child may swallow the tubercle bacilli which get into the lymph stream and then filter out into the lung and set up a tubercle which is not primary but secondary. Whether ingestion infection is more frequent than inhalation infection is an academic question that is open to debate.

In the cases reported by Dr. Bruce, you must have been impressed by the fact that the infection occurred at a time when these children were in constant contact with an open case of tuberculosis, and hence there was considerable involvement of the lungs in these cases. In the first case reported, that of Charles P., this boy showed a primary tubercle developing in the right base of the lung and not in the right apex where consolidation occurred. From this fact we must infer that a child who is highly allergic may show a consolidation in tissue remote from the primary infection.

Dr. Bruce said, in connection with some cases which had already extended over a period of three to three and one-half years, that they would probably later develop calcification. I hardly agree with him in respect to the primary tubercle as I feel that if they do not develop calcification within a year they will rarely, if ever develop it although I believe this to be true in regard to the tracheobronchial lymph nodes.

In some of these cases the primary focus of infection may undergo complete absorption and resolution and leave no evidence that it ever existed.

As to the prognosis in these early cases, as Dr. Bruce has demonstrated, these patients do remarkably well under ordinary treatment, provided they are removed from contact with the source of infection so that there may be no opportunity for reinfection. It is the adult or infiltrative type of tuberculosis that is dangerous. We have no assurance that these children may not later on have a recrudescence of this type of the disease. It is like the tide that ebbs and flows. In the early cases, of the type shown by Dr. Bruce, the exudate drains through the lymphatics into the root of the lungs, to infect tributary lymph nodes and lie there dormant. Later on the child loses its resistance and the infection flows out from the root into the lung and sets up an infiltrative rather than an exudative lesion; in other words, the adult type—the kind that kills; and while it may be diagnosed reasonably early, yet in spite of everything we can do, it goes on frequently to a fatal termination. There are very few clinical symptoms and very little elevation of temperature in this type of the disease.

Is allergy a concomitant of immunity? We formerly believed that unless one had allergy one did not have immunity, but we now recognize that there may be immunity without allergy; that a child may become extremely allergic following a reinfection, the tubercle bacilli finding lodgment and setting up an intense inflammatory reaction with an outflow of exudative serum producing consolidation. Some one, whose name I do not recall, attempted to produce pleurisy with effusion in laboratory animals, and found that he was unable to do so until he had first sensitized the animal by producing a mild infection by the injection of tubercle bacilli and subsequent injection into the pleural cavity set up an intense allergic reaction, with the formation of an effusion.

A moderate number of children have calcified tubercles in the root of the lung and the lung fields and give negative tuberculin tests. Do these children lack immunity because they lack allergy? I do not believe so, because for the most part they remain well. In April of last year we tested more than five thousand school children, in 28 per cent of whom the test was positive. I am convinced that all of these children will not later develop tuberculosis. We know that the foundation for all tuberculosis is laid before the twentieth year of life, and that of a given number showing positive tuberculin reactions, more than 90 per cent will escape development of the disease. We see many children with calcified areas scattered throughout the lung field, but that does not mean that they will necessarily develop tuberculosis. However, when we find a child showing a strong tuberculin reaction, it is wise to inquire into that child's family and examine all its contacts, because where a child shows a definite exudative type of tuberculosis there is certainly, among that child's contacts, an open case of tuberculosis.

As already indicated such children do well with routine treatment and a super-vitamin diet. For their intelligent management they require frequent x-ray or fluorscopic examination of their chest to note the retrogression of the lesion.

**P. A. Turner:** There are a few points that I would like to emphasize.

First, in regard to the definition of the term childhood tuberculosis. There was quite a difference of opinion among the authorities of the Sanitarium Association before they finally agreed that the term implies a diffuse or nodular lesion in the lung tissue associated with tracheobronchial lymph nodes. The condition is one that is very difficult of diagnosis by means of physical examination. It remains, then, for the roentgenologist to make the diagnosis. The different phases of the disease are not of course apparent at the same time; that is the x-ray plate may show nothing but the primary tubercle as a little, calcified spot; at another time it may show a diffusion with or without the primary tubercle, and at another time only the trachea-bronchial glands will be seen. However, any one of these pictures is sufficient to establish the diagnosis of childhood tuberculosis.

Dr. Bruce mentioned the discussion going on at the present time as to whether childhood tuberculosis carries with it an immunity to tuberculosis in later life, or whether it acts as a predisposing factor. I believe the general opinion is that it is a question of allergy, that an individual in whom the childhood type of tuberculosis creates a high allergic state, a later reinfection with the tubercle bacillus will set up a conflagration in the form of an acute tuberculosis that is very hard to deal with. On the other hand, if the first infection of the childhood type creates a low allergic state, it will carry with it a considerable degree of immunity to a secondary infection.

Another phase of the subject that is tremendously important is the fact that childhood tuberculosis is often looked upon very lightly by the average general practitioner. When we consider that if these cases of childhood tuberculosis could be diagnosed—which can only be done by means of the x-ray—and the individual given proper care and treatment, we could reduce the mortality from tuberculosis perhaps as much as fifty per cent, its importance becomes apparent. Those cases in which the x-ray shows tracheobronchial glands, whether there are calcified areas or not, must be considered as potential cases for the later development of the adult type of the disease. Therefore, when we find a case of that kind it is absolutely necessary to curtail that child's activity. For instance, about a month ago, seven members of a basketball team out in the State were brought to the Sanatorium for examination. Every one of the seven had demonstrable calcified glands. Of course, none of those boys should be allowed to play basketball. As a matter of fact, all but two are still playing, and some of them are undoubtedly going to develop the adult type of tuberculosis. That is the point I want to impress upon you; whenever you find a case of tracheobronchial glands, whether calcified or not, be sure to curtail that child's activities.

**E. R. Gernert:** Childhood tuberculosis is a real problem because of the difficulty of diagnosis and it behooves us, therefore, to take advantage of all the measures at our command, including history, physical findings, tuberculin tests, and the x-ray. The history will often give us a clue. As Dr. Bruce pointed out, the source of infection in many instances is the child's contact with an elderly person who has tuberculosis. The physical findings in these cases are practically worthless and would appear to be a waste of time. The Monteaux tuberculin tests, even though positive, do not necessarily indicate an active tuberculosis. There remains, then, the x-ray which should be employed in all cases to determine the extent of the lesion. Here, as in cancer cases, there should be better co-operation between the clinician and the x-ray laboratory. If the x-ray report comes back with negative findings and you are still suspicious that the child has tuberculosis, you will frequently find that another film made in the lateral position will reveal caseous lymph nodes in the mediastinum. It is these cases that furnish such a large percentage of those who develop the adult type of tuberculosis later in life. By getting them in time and putting them at rest, with proper diet and cod liver oil, as Dr. Miller suggests, we will go a long way towards reducing the incidence of the adult type of tuberculosis in later years.

**Benjamin L. Brock:** I wish however to say a word about the definition of the term "childhood type of tuberculosis." Like many other terms that have been used to describe this same condition, such as "juvenile tuberculosis," "infantile tuberculosis," etc., it is not truly descriptive.

The childhood type of tuberculosis is the name adopted by the National Tuberculosis Association to describe the diffuse or circumscribed lesions in the lungs and associated tracheobronchial lymph nodes that result from a first infection of the pulmonary tissue with the tubercle bacillus. When you tell a layman however that his child has childhood type of tuberculosis, he thinks of the condition in terms of adult type of disease, and even many physicians are vague as to the meaning of the term. Adult type of disease is a result of reinfection with the tubercle bacillus. Therefore, I think we should find a more truly descriptive term, although I have none to offer. "Primary tuberculosis" has been suggested, but even this does not describe the underlying pathology.

I wish to emphasize what has already been said concerning the importance of childhood type of tuberculosis as a public health problem. I feel that it is the most important in the whole field of tuberculosis. If we are to make any progress in our efforts to prevent the development of the adult type of disease we must first learn to recognize primary tuberculosis in the child and then follow it up from year to year thereafter. As has been pointed out, while the childhood type of tuberculosis tends to clear up very readily in most cases, yet that is not always true, and it is the case that does not clear up that we must watch if we are to prevent it from progressing into adult type of tuberculosis. Our present belief is that the majority of cases of pulmonary tuberculosis in adults result from the breaking down of a previous childhood infection. As a result of overwork or overplay or both, the body resistance is lowered and the hitherto latent infection in the lung or tracheobronchial lymph nodes breaks through its capsule and spreads out into the lungs; in other words, the adult type of the disease is more often the result of an endogenous rather than an exogenous reinfection, although, of course, some cases are of the latter type where we are dealing with massive infection.

The question has been raised whether or not the presence of a calcified area in the lung carries with it an immunity or resistance to tuberculosis. I think in most cases where it is not the result of massive infection it very definitely does increase the individual's resistance, and there is considerable evidence to support this view. For example, since the World War it has been observed that many negroes and mountaineers, who have spent most of their lives on farms in the country, and who recently have migrated to the large cities, have developed acute tuberculosis and died of overwhelming disease. The reason for this is that, unlike those who have spent their lives in large cities, they have not so to speak, been seeded with repeated small doses of tubercle bacilli from time to time, and thus have not gradually acquired a relative immunity to the disease. Another interesting fact is that we often see in adult negroes a type of the disease that is similar in all respects to the acute childhood type of tuberculosis; in many cases it progresses rapidly as the exudative type to a fatal termination.

I would like to hear Dr. A. J. Miller tell us something about the anatomy of the lymphatic system in the root of the lungs. At Waverly Hills we have observed that in many early cases of the exudative type of tuberculosis in negroes, even complete pneumothorax does not prevent the spread of the disease into the opposite tracheobronchial lymph nodes and from there out into the contralateral lung. It has been my belief that there is a direct anastomosis between the lymphatics of both root regions, thus accounting for this lymphogenous spread.

**Joseph C. Bell:** Papers of this type are of distinct value in considering the subject of childhood tuberculosis. Much more is known about this condition than was the case four or five years ago. Much emphasis has been placed upon the the value of the x-ray in the diagnosis of childhood tuberculosis and there are few today who will question its value. However, we must guard against reading too much into the x-ray film. Most cases with a positive tuberculin test will show characteristic changes on the x-ray film, but a small percentage of cases in which the test is positive will show no evidence of disease.

Four of Dr. Bruce's cases were of the type that is seen rather infrequently. They are of the group known as the exudative type of lesion, thought by some to be the primary tuberculous manifestation. As was pointed out by Dr. Miller there is a question whether or not these lesions are actually the primary ones, but they certainly are the first manifestation seen in the x-ray film.

Several years ago some investigators at Raybrook, N. Y. did some very interesting work along this line in rabbits. Tubercle bacilli were placed in one of the bronchi and after an interval of ten days bacilli were again injected. The reaction to the first injection was always slight but after the second a definite exudative type of lesion developed. In the majority of instances resolution took place with no permanent changes in the lung. However, in some cases the lesions continued to progress and were followed by necrosis and eventually resulted in death. It seems probable that children react in a similar way to a tuberculous infection. They probably first must be sensitized and then develop an exudative type of lesion upon reinfection. With proper care, the majority of those infected probably will recover but in a small group the infection may continue to develop.

The important part that contact plays in the spread of tuberculosis was emphasized last year in the anti-tuberculosis campaign. This was brought to my mind particularly a few days ago when a woman of about 83 years of age, presented herself at my office for x-ray examination because of a chronic cough. She had one of those chests with extensive fibrosis so often seen in elderly persons and had changes in the apices which I considered definitely tuberculous. Upon going into her history I found that a son had died of tuberculosis several years ago. The fact that her own condition had any connection with the disease in her son probably never had occurred to this woman. The discovery and prevention of contacts such as this presents one of the most important problems in connection with our efforts to control tuberculosis.

**Louis Frank:** I am familiar with the case Dr. Bell mentioned in his discussion. This man is the father of a family that I have had under observation for twenty-five years or more. There were eight children, all boys. Five of these children died of tuberculous infection; one of tuberculous meningitis and the others of lung tuberculosis. His wife had a tuberculous fistula of the anus which finally cleared up The father would never consent to have every member of the family examined. Finally, however, he himself went to Dr. Miller who found that he had an old fibrous tuberculosis. Two of the remaining children now have tuberculosis and the third is suspicious. This man has infected his entire family, yet he has been engaged in business for many years, works every day and resented any intimation that he was the source of infection.

Dr. Bruce's reference to Norwegians confirms my own observations on a trip through Norway. Norway probably ranks as high as any country in the world in the matter of education of its children and the general literacy of its people. It has the lowest infant mortality of any country on the globe. The percentage of cases of tuberculosis in young people in Norway is very low, and yet tuberculosis is a common terminal disease in the aged. I discussed this matter with many people, including a number of doctors in Norway, but they were unable to offer any explanation of why so large a percentage of old people die of tuberculosis.

There is another peculiar biological factor that was touched upon by Dr. Brock; that is, the difference between the white and colored races. It would seem to be unquestionable that the races whose skins show the greatest effect of the actinic rays of the sun acting through the ages, notably the negro and the American Indian, are the most susceptible to the ravages of tuberculosis. I do not know whether this is due to the explanation Dr. Brock suggests, that the white race, especially those reared in cities, have built up an immunity or resistance to the disease, but certainly tuberculosis does not run the same course in the white race that it does in the negro or the Indian.

**A. J. Miller:** I have been asked to discuss the anatomy of the lymphatics of the lungs. I am sorry to say I do not know much about them. I may, however, advance two or three ideas that may be helpful. One is that there is quite certainly a rather rich anastomosis between the lymphatics of the two lungs, through the lymphatics of the main bronchi, although information concerning them is variable and not dependable.

Another important fact is that lymphatic drainage of infections and metastases in malignant disease take place usually when the serum is forced through the smaller vessels rather than through the larger ones. Anastomosis between the smaller vessels is extremely rich and blocking of the stream is not very frequent.

Another point that is important to keep in mind in connection with the lymphatic drainage of the lungs is that the periphery of the lungs have lymphatics that drain peripherally; that is, about 1½ centimeters of the outer border of the lung tissue have small lymphatics which drain towards the pleura and not inwards. They unite to form the smaller vessels that drain inwardly, and this might explain some of the things that we see in tuberculosis.

I am reminded by the discussion of this subject tonight that there are three things commonly talked about nowadays, about which I am somewhat confused.

First, childhood tuberculosis. What is the difference between childhood tuberculosis and adult tuberculosis? I am certain that I do not have in mind any picture that seems adequate when I hear those expressions used.

Second, what is meant by the phrase "exudative type of tuberculosis?" How does it differ from other types?

Third, allergy. We all use the term and it is talked about in medical literature. The only criticism I could advance of Dr. Wallace Frank's report tonight is that he did not use it, although "allergy" is even talked about today as an etiological factor in neoplastic disease.

**James W. Bruce,** (in closing): Dr. Oscar Miller discussed the question of calcification appearing in the chests of these children. It has been found that children in whom the infection occurs before reaching the age of two years, as a rule, do not develop calcification; whereas, when the infection occurs after the third year of life calcification is very apt to develop. Of course, there are exceptions to this.

Dr. Gardner and other speakers referred to physical examination. I do not mean to be understood as saying that physical examination should not be made; on the contrary I think every child should be carefully examined, because we find so many other things. However, so far as tuberculosis itself is concerned, we are not going to learn much from physical examination. Most of the cases shown tonight presented extensive exudate in the parenchyma of the lungs, yet physical examination revealed practically nothing.

Now, suppose you get a negative Monteaux tuberculin test, what does it mean? First, it may mean that the child has never encountered the tubercle bacillus. Second, it may mean that the child has had a tuberculous lesion which has completely healed. We formerly believed that once sensitive to tuberculous toxin, always sensitive to it, but it now appears that there are a considerable number of cases where the lesion completely heals and the child loses its sensitivity. Third, it may mean that the tuberculin is not fresh. Fourth, the child may be in a temporary state of diminished allergy, particularly following acute infectious diseases such as measles, scarlet fever, etc.

A positive reaction to the tuberculin test means that some time during the life of the child, it has been infected with the tubercle bacillus but the skin reaction does not indicate the extent or the activity of the disease.

I agree with Dr. Brock as to the layman's point of view regarding childhood tuberculosis. When you tell the parents that a child has tuberculosis, they are terrified; they have a vision of the adult type of the disease and they think the child is going to die; they do not believe you when you tell them that the prognosis is favorable.

Some one asked about the work of Dr. Calmette who developed an attenuated type of tubercle bacillus by culturing it through many changes of media until it became avirulent, and he could then safely inject it into children. He used it in a great many thousands of cases and claimed that these children developed an immunity which protected them against the development of the disease, even though living in tuberculous households. Of course, these claims have been denied, and in the city of Liepzig it was demonstrated that a great many children developed tuberculosis following such inoculations. That gave it a black eye in Europe and it has not been used so extensively since. In this country Petroff demonstrated that virile organisms could be grown from these supposedly avirile bacilli. I believe I am correct in saying that at the present time the feeling about B. C. G. as it is called is a divided one and that considerably more work must be done with it before it is accepted as a public health measure.

Is it a good thing to sensitize a child against the tubercle bacillus? We formerly believed that a primary childhood infection acted as a vaccine and gave the child immunity for life, whereas the evidence of the past two years is that it really predisposes to a later infection.

Dr. A. J. Miller asked about the difference between childhood tuberculosis and the adult type of the disease.

First, in regard to the pathology. In childhood tuberculosis the lesion is essentially an exudate, not fibrous tissue, which will drain off and leave no scar whatever, whereas in the adult type, the lesion is a fibrotic process and cannot drain off completely, leaving a scar for life. It may become smaller, but it is a fibrosis, which cannot disappear.

As to symptoms, in childhood tuberculosis they are few; possibly irritability and fatigue, but usually no cough, no fever, and the child is inconvenienced very little; whereas in the adult type there is cough, fever, expectoration, etc. In the adult it is contagious; in the child rarely so.

As to the prognosis, in childhood tuberculosis, at least so far as the immediate future is concerned, unless the disease becomes general and results in miliary tuberculosis or tuberculous meningitis, they usually get well; while in the adult type the lesion is destructive, with infiltration, and frequently goes on to a fatal termination.

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**Folliculin in Involutional States.**—Sevinghaus presents the results he obtained in a series of thirty-two women, who presented psychic and nervous phenomena that are commonly associated with the involutional state, and whom he treated with folliculin. Hot flashes occurred in all the patients of the series, paresthesias in sixteen, insomnia in nineteen and psychotic pictures in seventeen. Obesity was observed in only thirteen, and hypertension in ten. Of this series six had artificial climacteric produced by irradiation or surgery, and there were three patients with a spontaneous premature menopausal picture, possibly to be considered as ovarian insufficiency. The author found the use of simple psychotherapeutic procedures and small doses of folliculin daily or oftener helpful in the psychotic cases as well as in the simpler vasomotor types and the pseudothyrotoxic types previously reported.

## FORUM

### PELLAGRA

J. H. HENDREN, M. D.

Pineville.

An article on "Pellagra" by Dr. T. M. Ratcliffe of Kona, in the July number of the JOURNAL, comes about as near hitting the pellagra nail square on the head as any article I have read in a long time.

The first case of pellagra in Kentucky to be publicly diagnosed as such, was in the person of Mrs. Sam Gambrel of Cary, Bell County, in the spring or early summer of 1911. Since that time the writer has seen many hundred cases, both in consultation and alone. In our pellagra clinics held two or three times a year, we see as many as fifty cases in one day. While I have never been able, from financial reasons, to study these cases from the laboratory standpoint, as I would like to, still I have been studying them clinically for the past twenty years to my heart's content, and I have arrived at a few conclusions, which I herewith present to you.

First: The Lombrose corn theory is not correct. A corn diet in any form has nothing to do with pellagra.

Second: Nursing babies, six months old and over, who have never had any diet but mothers milk, do sometimes develop pellagra.

Third: Pellagra is a "locality disease." Certain localities, communities, creeks will have a number of cases of pellagra extending over a long period of time, while an adjoining creek across the mountain will be practically free from the disease. Seventy-five per cent of all the cases of pellagra in Kentucky occur in Bell, Harlan and Whitley Counties.

Fourth: There is such a thing as "acquired immunity" to pellagra. Persons living in a pellagrous community are not so susceptible to the disease as outsiders.

Fifth: Persons moving into a pellagrous community, from a non-pellagrous community, "out in the sticks," generally develop the worst, most rapid and sometimes most fatal cases.

Sixth: Pellagra is a "house borne" disease. If a pellagrous family move out of a house, and a non-pellagrous family move in, the non-pellagrous family will generally develop one or more cases within the next twelve months.

Seventh: While alcohol does not cause the disease, it certainly does aggravate it. Pellagra in alcoholic males in my cases have been 100 per cent fatal. Cutting off the alcohol after pellagra is established does not help the situation any.

Eighth: I seriously doubt if pellagra is curable; Goldburg and Wheeler to the contrary notwithstanding. I have seen many cases after four or five years seemingly sound and well, come down again. Whether this is a new case or an exacerbation of the old one, is debatable.

Ninth: I do not believe in the Goldburg vitamin diet theory as the real cause of pellagra. Improper diet is a contributing cause of many diseases, and proper diet a cure of just as many. Very few Southeastern Kentucky doctors believe in this theory.

Tenth: Pellagra is not contagious. The injection of blood from a pellagrin to a non-pellagrin does not cause the disease.

Eleventh: Pellagra is not nearly so common as most people believe. I have known a number of cases of tan, sunburn, vitiligo and other dermatoses, (even poison ivy) diagnosed as pellagra and so treated. Self diagnosis is responsible for many reported cases. Red Cross assistance has increased the number of reported cases in some localities. Many people believe that if they are sick with something, the dole will be increased. Many of the reputed "cures" of pellagra, never had pellagra in the first place.

Twelfth: I believe that pellagra is caused by some foreign organism, possibly a non-filterable virus, which floats in the blood stream of the victim, and has an intermediate host, which host is to be found associated with houses and homes and which host and organism has not been isolated.

---

## NEWS ITEMS

### Frankfort Physician Honored

The University of Pennsylvania on June 21 conferred upon Dr. William Snyder, Frankfort, the degree of Master of Science in Medicine and Surgery.

Dr. Snyder is an A. B. of the College of William and Mary where he was honored with the Phi Beta Kappa and Omicron Delta Kappa.

He was graduated in Medicine from the University of Chicago in 1925. After practicing medicine in St. Louis, for two years, he opened an office in Baltimore, until 1929, when he retired from the general practice to do post graduate work at the University of Pennsylvania.

After completing the years' work in Philadelphia, he was appointed to the Lakeside Hospital of the Western Reserve University in Cleveland, Ohio to continue his research work in Surgery and later moved to Frankfort.

The M. S. degree is the highest obtainable in the specialty.

The thesis for this degree was based on twenty-six operations on the rare infection of Lateral Sinus Thrombosis performed at the Lakeside Hospital by Dr. Snyder and Dr. C. C.

Cutter who recently succeeded Dr. Henry Cushing in the chair of Surgery at Harvard.

The bibliography of this thesis is reputed to be the most complete ever compiled on this rare infection.

---

Dr. Arthur T. Hurst announces the opening of his office, Suite 501 Heyburn Building, Louisville. Practice limited to internal medicine.

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Dr. David E. Jones announces the opening of his offices for the limited practice of Orthopedics particularly as applied to Chronic Medicine and Corrective Work. The Heyburn Building, Louisville.

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Dr. R. C. Pearlman announces the opening of offices, Suite No. 506-508 Breslin Building, Louisville. Practice limited to Surgery and Gynecology, Plastic Surgery. Hours: 2:00-5:00 p. m. Phones; JA 2422; WA 4823.

---

The International Assembly of the Inter-State Postgraduate Medical Association of North America will be held in the Public Auditorium, Cleveland, Ohio, October 16-20, 1933. Many distinguished teachers and clinicians will appear on the program. A major list of the names of the contributors to the program, with other information appears in the advertising columns on page XXI of this Journal. All members of Kentucky State Medical Society are cordially invited to attend. Registration fee of $5.00 admits all members of the profession in good standing.

---

Dr. J. Ernest Fox, who, since his resignation as Superintendent of Central State Hospital at Lakeland, has been associated with Dr. Geo. P. Sprague at High Oaks Sanatorium as Resident Physician now becomes Medical Director of The Sanatorium. Dr. George P. Sprague is owner and consultant.

---

## COUNTY SOCIETY REPORTS

**Jefferson**: The following is the program for the September 18th meeting of the Jefferson County Medical Society:

1. Some Problems in Traumatic Surgery, Ira N. Kerns, M. D.
2. The Doctor on the Witness Stand, Mr. Charles Morris, (guest speaker.)

Discussion to be opened by Drs. Heman Humphrey and C. G. Forsee.

---

**Monroe:** The Monroe County Medical Society met in the Monroe County Health office, in Tompkinsville, on July 19th, 1933.

Those present were: Drs. R. F. Crabtree, of Gamaliel; J. T. Hughes, Ft. Run; J. T. Smith, Gamaliel; and R. F. Duncan, J. F. Marrs, H. B. Ray, Geo. E. Bushong, Geo. W. Bushong, and J. A. White, dentist, Tompkinsville.

Meeting called to order by Dr. R. F. Crabtree, President. On motion of Dr. J. F. Marrs, seconded by Dr. J. T. Hughes, that it is the sense of this society that we indorse the plan, outlined in your letter of July 15th, in toto, concerning the compensation of physicians by R. F. C., and that we further recommend that the dentists of the state be included.

GEO. E. BUSHONG, Secretary.

---

**Grant:** The Grant County Medical Society met Wednesday evening, July 19, 1933, at 7:30 p. m. in the Court House in Williamstown, with the following members present : Drs. C. D. O'Hara, J. D. George, A. D. Blaine, N. H. Ellis, J. W. Abernathy and C. A. Eckler.

The minutes of the last meeting were read and approved. In the communication of Dr. A. T. McCormack relative to relieving the medical profession of its burden in taking care of the unemployed, was read and unanimously approved by the Society and a letter ordered written to Dr. A. T. McCormack telling him of our hearty endorsement and giving him our co-operation. A communication from Dr. Moss of Whitley County Society was read and endorsed by the ones present.

We now took up the subject of case reports and some interesting cases were reported. One case of venereal in a boy six years of age, was reported by Dr. C. A. Eckler, also a case of compound fracture in a boy ten years of age, which is healing uncomplicated.

Dr. J. D. George reported an interesting case of Pellagra in a girl nineteen years of age and invited the society to see this case and offer suggestions they might have as remedial agents.

Dr. C. D. O'Hara reported an interesting case of Peptic Trouble in a fracture which was no doubt due, which he showed us, to bone infection.

Dr. J. W. Abernathy, our president and essayist for the evening reported some very interesting cases of Typhoid Fever of a very fatal type. These were locations on creeks and the water was shown to be polluted where these cases occurred. Some of these cases ran a temperature of 106 degrees, and one of the severest type, meningeal in character, rather a fatal type of this malady. This shows that we, as physicians, should urge the preventive treatment of typhoid fever by vaccination in our individual communities.

This meeting was very interesting and enjoyed by those present.

We now adjourned to meet the third Wednesday in August at the usual time.

Subject for next time will be announced later.

C. A. ECKLER, Secretary.

**Kentucky Medical Journal**
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NEXT MEETING MURRAY

## COUNTY SOCIETY REPORTS

**Bourbon:** The regular meeting of the Bourbon County Medical Society was held in the Court House, May 18, 1933 at 7:30 p. m. Members present were : Drs. C. G. Daugherty, G. L. Rankin, J. A. Orr, H. M. Boxley, W. G. Daily, J. T. Vansant, J. C. Hart, R. M. Blemker and W. B. Hopkins.

The following visitors were present: Drs. R. L. Kelly and H. M. Weeter, Louisville; Drs. L. H. Mulligan and C. C. Barrett, Lexington; Drs. B. F. Reynolds, T. P. Scott, and E. B. Hatter, Carlisle and Dr. Blount of Leesburg.

Dr. R. L. Kelly read a paper on "Common Skin Diseases" which was illustrated with slides. This paper was discussed by Drs. Mulligan and Barrett. Dr. H. M. Weeter read a paper "New and Old Laboratory Tests in Medicine." This paper was discussed by the members and visitors.

W. B. HOPKINS, Secretary.

---

**Carter:** A meeting of the Carter County Medical Society was held at Grayson, June 3, 1933. Meeting called to order by the president. Dr. H. T. Sparks. Members present being as follows: Drs. G. B. O'Roark, J. Watts Stovall, W. S. Hawn, R. G. Townsend, and H. T. Sparks.

A motion was made by Dr. G. B. O'Roard and seconded by Dr. W. S. Hawn to rescind the order of Dr. Smithfield Keffer being delegate to the Kentucky State Medical Society. The motion was carried unanimously.

On a motion by Dr. G. B. O'Roark and seconded by Dr. R. G. Townsend, Dr. J. Watts Stovall was selected as delegate to represent the Carter County Medical Society at the meetings of the Kentucky State Medical Society for the year 1933. On this same motion Dr. G. B. O'Roark was elected alternate delegate.

H. T. SPARKS, President,
R. G. TOWNSEND, Secretary.

---

**Cumberland Valley Medical Society:** The semi-annual meeting of the Cumberland Valley Medical Society was called to order at the First Baptist church, in London on June 22, by Dr. W. G. Pennington, president. The morning session was devoted to short talks and good will addresses by most of the doctors present.

At noon a sumptious old fashioned countrv chicken dinner was served at the London Hotel, much enjoyed by all. The afternoon session was carried out in full, every speaker being present, as follows:

**Program**

11:00 a. m. Business Meeting.
Address of Welcome, Dr. J. W. Crook, of London.
11:30 a. m. Short Paper.
12:00 M. Dinner at London Hotel.

Round Table Introduction.

1:15 p. m. Dr. Philip Barbour, Louisville, "Chorea."

Dr. C. C. Turner, Glasgow—"X-Ray Diagnosis of Pulmonary Tuberculosis."

Dr. O. P. Nuckols, Pineville—"Shall Modern Medicine be Socialized?"

Dr. A. T. McCormack, Louisville—"Medical Practice in Kentucky."

Dr. Fred W. Rankin, Lexington—"Modern Management of Lesions of Stomach and Duodenum."

7:30 p. m. Dr. Louis Frank, of Louisville, addressed the general public in the Baptist Church on the subject of "Cancer."

The Cumberland Valley Medical Society is the largest and most active medical institution in Kentucky outside of the Kentucky State Medical.

The next meeting will be held in Harlan sometime about the middle of December.

J. H. HENDREN, Secretary.

---

**Franklin:** The meeting of the Franklin County Medical Society was held Thursday, June 8th, at the Capital Hotel.

The following members were present: Drs. Ginn, Snyder, Minish, Travis, Jackson, Coleman and Youmans. The meeting was called to order by the President. Minutes of the last meeting were read and adopted.

Dr. Coleman made a motion, seconded by Dr. Minish, that the Society invite Dr. Smith, member of the State Health Board to hold a Tubercular Clinic here in the fall. Mr. Hugh Hudson, who is with the Credit Advertisement Bureau of this city, met with the Society. The members agreed to accept his plans and to invite the Doctors who are not members but have been members in the past, to join in also.

Dr. Coleman, who had charge of the program, reported some very interesting cases of nephritis. Dr. Snyder reported some eye cases and refractions.

The Society voted to postpone the meetings until the second week in October, due to the hot weather.

The meeting adjourned to the Hotel Dining Room for lunch.

C. E. YOUMANS, Secretary.

---

**Lawrence:** The Lawrence County Medical Society met in regular session at the Louisa General Hospital, Louisa, with President Thompson presiding. Members and Doctors present were: A. W. Bromley, W. A. Hayes, A. M. French, W. W. Wray, L. S. Hayes, and the newly elected Health Doctor, H. G. Wells.

Various communications were read and discussed.

The secretary was instructed to execute the credentials for the delegate and alternate to the State meeting.

Doctor Wells was asked to talk upon the health problems of our county. He did so, informing us of some typhoid developing, and asked for an expression from the Society as to just how far he should go in the work of inoculation. After considerable discussion, it was decided that inoculative work should be confined to the "School-age," particularly in view of the fact that it would be utterly impossible for one Health Unit to do very little more than this, and that it would be manifestly unfair to inoculate some and not others. Also, that the indigent cases should be cared for by the Doctors rather than have the Health Doctor start doing clinical medicine. It was also stressed very strongly that the educational side of preventive medicine had been neglected and was now being, and that much time should be given to this phase of the subject.

We adjourned to meet again Friday afternoon, August 4.

L. S. HAYES, M. D., Secretary.

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**Third District:** The Third District Medical Society met with the Christian County Medical Society at the Hotel Latham in Hopkinsville on June 19th, with Dr. G. W. Bushong, President, presiding, and Dr. W. S. Sandbach acting as Secretary. The following doctors were present: Drs. Gant Gaither, D. H. Erkeletian, W. E. Gary, J. W. Harned, W. S. Sandbach, M. E. Loftus, F. London, B. A. Caudle, Paul York, J. E. Hunt, Austin Bell, B. E. Boone, Jr., H. P. Sutton, W. E. Bartlette, T. W. Perkins, G. W. Bushong, F. M. Stites, Sr., Frank M. Stites, James Stites, J. C. Dodson, C. C. Howard, A. W. Belcher, M. A. Gilmore, S. S. McReynolds, T. H. Turner, O. L. Barnes.

Dr. Paul York, Glasgow, presented a paper on "Memingo-Vascular Syphilis," and Drs. F. M. Stites and James Stites, sons of Dr. Stites of Hopkinsville, presented papers on "The Medical Preparation for Urological Surgery" and "Surgical Care of Urological Patients."

Dr. R. L. Woodard of Hopkinsville. was seriously ill at this time, and flowers were sent to him by the Association.

The meeting adjourned to convene in Bowling Green in August.

JNO. H. BLACKBURN, Secretary.

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VOL. 31. No. 10 BOWLING GREEN, KY., OCTOBER, 1933

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# KENTUCKY MEDICAL JOURNAL

BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

**Published Under the Auspices of the Council**

VOL. 31 No. 10 BOWLING GREEN, KY. OCTOMBER, 1933

## THE MURRAY MEETING

The meeting of the State Association at Murray was a glorious ending to one of the most difficult and yet productive years in its history. The total registration of 427 represented practically one out of every five men in active practice in the State.

The program was of unusual excellence throughout. The symposium on pediatrics would have done credit to the American Pediatric Society. The article by Doctor Scott and the address by Doctor Kimball presented advances in medical science that were of the greatest practical interest and value. Doctor Bartlett's address was one of the most profound contributions to the history of medicine that has ever been presented anywhere. We wish to call especial attention to the excellence of the program on the last day. The attendance was smaller but those who heard the papers agreed that they represented the best of the entire session.

The proceedings of the House of Delegates showed the careful thought that is being given to the important medical sociological problems that confront the profession and the public generally. 108 counties were represented by delegates in attendance. Only two previous meetings have been so fully represented in the House. This indicates the increasing interest that is being taken by the County Societies in their problems. In the selection of Doctor Howard as President and Doctors Sandlin, Morrison and Palmer as Vice Presidents the Association is assured a splendid administration for the next two years.

On every hand and from every section of the State there came constant approval of the service rendered by the retiring President, Doctor Philip F. Barbour, for the past two years. Doctor Barbour has been untiring in his efforts to reach every section of the State with the splendid program he has been developing for a better conception of the problems which confront the profession.

The next meeting of the Association will be held in Harlan under the auspices of one of the best county medical organizations anywhere. Preparations for the success of this meeting are already under way and we are sure the profession will look forward eagerly to it.

## AN IMPORTANT CONFERENCE

The Editor had the privilege of attending the Annual Conference of the Secretaries and Editors of the Constituent State Associations of the American Medical Association in Chicago, September 22 and 23. All of the officers of the Association were present at these sessions. The program was of unusual practical interest to every physician in the United States. The discussions of questions of medical economics were particularly interesting. The two year survey of medical service in the public health situation in Michigan was presented by Doctor Fred C. Warnshuis, the Secretary of the Michigan State Medical Association. Our members will look forward with interest to its appearance in the Bulletin of the American Medical Association. It is the most practical examination and diagnosis of this state-wide problem that has yet been made anywhere and we wish to congratulate the physicians of Michigan on its thoroughness and completeness.

It will be gratifying to the profession of Kentucky to know that most of the suggestions that were made as to procedures have long been in successful operation in this State. A special session was held for the discussion of the question of medical service under the Federal Emergency Relief Administration. The plan which has been offered to the profession of Kentucky is in operation in eighteen other states and it was gratifying to find that it had met with general approval. It seemed to be the consensus of opinion that each County Society appoint a committee of one or more members to cooperate with the local relief committee in the matter of medical service. It was generally emphasized that the members of the profession would realize that the Federal Government was attempting in this new departure to recognize a correct principle in medical service for the unemployed and that the profession should co-operate generously and effectively.

In many ways this is one of the most important conferences which is held by the American Association. Special emphasis was placed on the importance of membership in the parent body of the great medical profession of America.

## PRESIDENT'S ADDRESS

## THE ART OF LIVING*

W. M. MARTIN, M. D., Harlan

The most vital of all the arts is the art of living. Therefore, it is the most difficult to learn and the most exacting to practice. But, a relatively few people have succeeded in mastering even the elementary principles involved in the accomplishment of this most enviable achievement. Those who have approached the ideal preserve an elusive modesty or a positive timidity in acknowledging such a rare and difficult accomplishment.

To make the task of dealing with this subject as simple as possible, we will try the experiment of reducing it to mathematical principles and assume that it has three dimensions. Lenth, breath and depth. The first of these, length, is most pertinent to the medical profession and to the individual. It shall claim the preponderance of attention on this occasion. I do not believe that any person with an average estimate of material values would hesitate to confess that he would be willing to sacrifice both breadth and depth in the interest of length. That we all would be willing to live narrow lives and shallow lives if by so doing we could correspondingly lengthen the span. This may sound like an indictment, but each one of us knows it is true whether we are willing to admit it or not. The law of self preservation continues to hold its sway as completely as it did in the prehistoric and stone ages. Civilization has produced no abatement of its inexorable decrees. In fact, civilization itself is but an elaborate and a supreme effort to comply with its demands.

Tersely stated, longevity may be acquired in at least, two ways. (1) By scientific resistance against the invasion of the forces that are detrimental to vital processes. (2) The complete eradication of the agencies of destruction before they can even enter or approach the sacred precincts of our bodily tissues. Sounds simple, like putting salt on a bird's tail. May we enumerate some of the factors that abbreviate our existence. I would place at the head of the list as captain of the men of death, willful Ignorance. I would write it in capital letters, italicized and underscored for emphasis. By the term, I would not imply the sense in which it is generally used. I do not mean by Ignorance a lack of culture or education or the social refinements that obtain in polite circles. Nor do I use the term as it is so often sneeringly applied to classes and geographical boundries and the inhabitants of remote and obscure districts. But, I mean that which is indicated by an attitude of indifference toward acquiring knowledge that is essential to individual welfare and failure to cooperate with the efforts and agencies that are put in force by the government for the preservation of health and the extension of life.

The kind of Ignorance we are discussing may be divided into two classes: Willful and excusable. The former perhaps includes the larger group. As an example consider the multitudes that scoff the laws of public hygiene, not only condemn but defy vaccination and the antitoxins and disown the dangers of contagion, hold in derision the germ idea and mock the medical profession. There are many otherwise educated and intelligent people who might be termed "biological skeptic" who hold as naught all physiological phenomena that affect the human body while accepting and believing parallel phenomena in the lower orders of life. This class is so stubborn, so inconsistent, they refuse to look at or consider the evidence for fear they be convinced and stand in their own sight guilty of error. Their prototypes prevailed in the days of Galilleo when they flatly refused to look through his telescope, calling it a trick of the devil to discredit the Almighty and had him thrown into prison, because he proved that the earth revolved around the sun, instead of the reverse. There are as many of the same kind of prophets today as there were then, but our laws today enforce the doctrine of tolerance so far as physical force and acts of violence are concerned. All the schisms and pathies and schools of thought and sciences in the world are nothing but hives for mental monstrosities and moral perverts to rendevous in and from which they radiate to feed their over-weening vanities or gratify their greed for gold. Whoever heard of any of these predatory insects proposing a plan for prevention of illness either singly or collectively.

Nobody begrudges them the money they filch from their unwary victims or the patronage they command or the worship they receive. Their real infamy exists in the fact that they stand between their hopes and a chance to live. These people, having no regard for the dangers of contagion or the fears of infection, becomes the means of transmission and the source of wide and mortal epidemics. If those opposed to the established principles of physiology, pathology and hygiene could be kept within their own ranks, no one would care to interfere seriously with their programs. No one would be seriously concerned with their mortality statistics. But it is the helpless infant and the innocent bystanders that are demanding protection and we are morally responsible for its deliverance. This constitutes the most delicate and difficult responsibility the medical profession has to bear, because people instinctively resent any interference, (apparent or real) that seems to restrain them in the exercise of what they consider to be their rights and privileges, even though the proposed restrictions are obviously for their benefit and protection. On the other side their prophets are continually preaching the doctrine of the sanctity of personal liberty to stimulate their resistance and at the same time blatantly accuse the regular profession of the sins of envy, jealousy and selfishness. A situation like this is one of our major problems and must be adequately dealt with if we discharge the duties of our high calling. To be so it will require an artful exercise of all the patience, diplomacy, skill and strategy that can be acquired. But the reward is correspondingly great. I am sure that if we were relieved of the serious obstacles constituted by the quacks and charlatans, we could increase expectancy to 100 years.

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Excusable Ignorance. This is also a factor in abbreviating the longitudinal dimension of man's existence. Although blameless, it is not innocuous, but operates as a factor in the mortality statistics. "Art is long, life is short and experience is fallacious," for that reason many of us fail to appreciate the importance of newly discovered facts relating to our personal safety and our professional usefulness. This lack of perception is most often euphonized by the term "conservatism." When the spondylitic Pope wrote those immortal lines—

"Be not first by whom the new is tried
Nor last to lay the old aside,"

he did not realize that he had shod the feet of progress with leaden shoes and held back the advance of scientific medicine at least a century. Every new discovery in medicine must creep through the slow and painful process of exciting curiosity, stimulating interest, winning confidence, clumsy application, imperfect understanding before being accepted. All this time people are suffering and having their lives snuffed out by halting tactics, timid application and deadly delay. As an example, look for a moment at the history and development of antiseptics. Lister wrote his article in 1865 and it was not until 1890 that it found acceptance and practical methods of application were developed. All that time surgical operations were claiming their minimum of 33 1-3 per cent mortality.

The most pernicious obstructors of medical progress are the antivivisectionists because their activities are the most material. They weild a more subtle influence and their cause has a strong emotional appeal. They would throttle knowledge at its source and dry up all the streams of both thought and action that lead to valuable discovery. Without animal experimentation, the advance of medical science would stop tomorrow. Without animal experimentation, there never could have been any advance in medical science. Without this vital aid thousands of innocent lives would thereby be sacrificed. And there are all over the country cultured and so-called intelligent people banded together in concentrated and legalized effort to arrest all real progress in the curing of human ailment. One can hardly conceive of such misdirected energy. Their inconsistency lies in their willingness to accept in time of personal distress the benefits which are derived from the very source which they condemn and seek to destroy.

Because it is so much easier to be cautious than rational, the world is ruled by caution instead of reason. When Harvey announced his discovery of the circulation of the blood, it is said that no one over forty, accepted or believed in it and it was one hundred years later when Hunter discovered there was a collateral circulation and another century elapsed before Pasteur established those principles by which he actually doubled the span of human life. In all those intervening years from Harvey to Hunter and from Hunter to Jenner and from Jenner to Pasteur and from McDowell to Lister, John B. Murhpy, McBurney, and Lawson Tate and Joseph Price and Robert Koch, it would be impossible to compute the toll of human lives claimed by caution and sacrificed upon the altar of conservatism.

Even Gross, who bears the distinction of having been nominated as the author of American Surgery wrote, "Few surgeons of consequence on either side of the Atlantic have little, if any faith in Mr. Lister's carbolic acid theory."

When Oliver Wendell Holmes published his essay upon the Infectious Nature of Puerperal Fever, he suffered and withered under the righteous indignation of Professor Meigs and Professor Dewees, who pronounced his theory as blasphemy and branded him as a heretic and poor Simmelweiss was driven insane by the persecution of his traducers and died in a mad house for holding to the belief in the infectious nature of child-bed fever and attempting to teach it to his students. It was seven years from the time McDowell operated on Mrs. Crawford before he published his report and it was nearly twenty years before he was followed by Lizars, a

European surgeon and then with such indifferent skill that he lost three out of his four patients. This resulted in complete banishment of the operation from European clinics for twenty years. McDowell was granted a diploma and became a doctor in 1821 twelve years after he had performed the worlds first successful ovariotomy. When Pasteur proved that the theory of spontaneous generation was a myth and existed only in the imagination of distorted minds, he became the storm center of attacks from all the established orders of metaphysical authorities and the battle raged with unabated fury for a quarter of century. The waves of fanaticism and outraged piety continued to beat with impotent wrath against this rock of serene truth. But, all this time unnecessary deaths were accumulating every day. In Paris, almost in sight of Pasteur's laboratory, a new house was built for the special purpose of removing ovarian tumors to prove fallaciousness of the doctrine of germ origin of infection and ten young women were operated upon and in due time ten caskets containing the mute evidences of unwarranted assumption were borne to the cemetery and they called it the "House of Death." Within the memory of many people now living, the idea prevailed that it was impossible for a wound to heal without going through a period of suppuration and those who held the opposite opinion were regarded as harmless lunatics. How much better off the medical world would be today if the advice that John Hunter gave his pupils, had been followed by the succeeding generations. He said to his pupils, "Don't think: Investigate and that is what he wrote to Edward Jenner who announced that he thought he had a prevention for small pox. Those who accept the dictum of authority as final should remember what Michael Angelo told his pupils, "If you want to learn art, young men, go to the Pantheon and observe the mistakes that the masters have made." Or the words of Gouley, one of America's most distinguished surgeons, who declared in 1870 that "antiseptic surgery will never die, because it is already dead" and Erichsen, who predicted in 1860 that surgical art had reached its peak and the only improvement that would come would be in manual dexterity

While caution is regarded as the synonym of wisdom and prudence it can and does just as often indicate stupidity. There is a streak in human character broader in some than in others that prompts the feeling that if this new thing was of value I would have thought it out myself. Perhaps, diphtheria antitoxin illustrates this particular phrase better than anything else. It would be difficult, indeed, to estimate the number of innocent children who died of diphtheria while the doubting Thomas's were wagging their wise heads and refusing to be convinced and what is worse refusing to view the evidence. This kind of ignorance can only be excused on the ground that it is an inevitable ingredient of nature. Almost everyone in this audience can recall the time when typhoid fever was considered a dispensation of providence. While this belief prevailed there were annual epidemics with a mortality of fifty thousand a year in the United States alone. Now that we no longer lay the blame on providence and realize that the fault was "not in our stars but in ourselves, dear Brutus," there is not 1-10 that many cases. The same can be said of all the infectious and contagious diseases. As ignorance is the Prince over the dominions of doubt, disaster and death, so is knowledge the King of light and life and hope. The knowledge that has been applied has doubled the span of human life in fifty years and if that which is available were intelligently applied forty years more could be added to the present expectancy.

The boon supplied by rubber gloves in the protection of both the doctor and patient can never be fairly estimated and yet I heard so great a man as Dr. Joseph Price decry their use on the basis of impaired dexterity increase in operative time and insecurity in the tying of ligatures. He predicted that more people would die of hemorrhage and shock as a result of clumsy and prolonged operating than could be saved by the additional aseptic protection offered by the gloves. I hope you keep in mind that all these factors are vital to the longitudinal dimension of life, the phase we are considering at this time.

It is not necessary to more than invite attention to the extension of life in connection with epidemic diseases. All that is familiar even to the school children. Preventive medicine and the general rules of hygiene are common knowledge even in the remotest hamlets and at every cross road. Our task now is to emphasize the individual responsibility. I mean that equally as much for the physician as for the patient. Take for example the newer methods of treating pneumonia and intestinal toxicoses that have reduced the mortality forty per cent. It is the physician's responsibility to master those new technics. Yet we know how difficult it is to learn old dogs new tricks. When any doctor reaches the point where he has become satisfied with his methods and results he has reached the limits of his usefulness and should retire to private life. The saddest words that fall from the lips of a doctor are these, "I have always treated my cases thus and so and I have been very well satisfied with my results." How much more hopeful it would be for him to say, "I am relying upon certain measures and methods of treatment hoping each day something better will be presented. If new truths are to be put to useful purposes there must be available the proper soil in which they can propogate. Minds to which they are acceptable. When Pasteur published his marvelous discovery of the nature of fermentation in all this big round world there was only one mind in which it found a hospitable logding, that was the mind of Joseph Lister and its benefits were realized and enjoyed in every civilized country on the globe before it was accepted in England.

There were approximately 18,000 deaths in the United States last year from appendicitis and every one will acknowledge that no uncomplicated case should die. Very few deaths occur from improper operative technic or lack of hospital efficiency. Eleven thousand deaths were traced to the administration of purgatives and the rest were due to delay. The doctrine should be promulgated that under no circumstances should a patient with abdominal pain ever receive a purgative. The preceding generation of doctors taught their pupils and their patrons that abdominal pain was due to some irritating substance in the alimentary canal that should be swept away by the administration of a purgative of which there were several types classified according to their severity. How many times and with what wealth of feeling I have heard the professor of medicine admonish his students in stentorian tones to begin the treatment of all cases of illness by cleansing the system with a drastic purge, a brisk cathartic or a mild laxative. This custom still holds sway in the minds of the general public and resulted in one year, in eleven thousand deaths in connection with one disease alone. In intestinal obstruction it is the largest factor in maintaining the mortality rate at 50 per cent of all cases, when it should not be more than 10 per cent.

One of the gravest responsibilities confronting the modern doctor is the correction of this particular error planted in the minds of the people by the preceding generation of practitioners. If we could convince the public that a purgative should never be administered in presence of an abdominal pain, we would save eleven thousand lives annually in connection with one disease. Those of us who are incompetent to contribute new processes by which life may be extended should, at least, be able to prune off the dead limbs that hang upon the tree of science and retard its growth and restrict its range of benefit and usefulness and provide a nidus for the germination of destructive, parasitic cults and isms.

In a paper of this kind I cannot escape the responsibility of mentioning cancer and its toll of 20,000 deaths per year, which evokes the sad commentary that all accessible cancers are curable at a certain period of their existence by a sufficiently early diagnosis. However, this omission would fall in the classes of both excusable and willful Ignorance and apply equally to the physician and the patient. There are cancers so frank and plain that they actually proclaim their nature and are really difficult to conceal, yet their victims deliberately refuse to acknowledge their existence and go on clutching the delusive phantom of hope until every vestige of prospect for relief has vanished. Also there are cancers so insidious in their invasion and subtle in their manifestation that not only the patients, but the best informed physicians are deceived as to their real character. Thus, we see hopeless cases with nowhere to place the blame except upon the state of our knowledge.

It is, indeed, a significant fact that infections either chronic or acute is the known cause of 86% of all deaths. This is strongly indicative if not proof that the vital structures if protected against external noxious influences are self-perpetuating. That human life with the exclusion of microbic and parasitic invasion might be correctly compared to that of a tree which becomes stronger, larger and more vigorous with the advancing years, unless subjected to mechanical violence or parasitic infestation. The fact has long been recognized in scientific circles that senility or old age and its incidental infirmities is strictly an infectious disease, the essential pathology of which is the substitution of connective for elastic tissue principally in the arterial walls, thereby, creating the same differences between old and young blood vessels that exists between a canvas and a rubber tube. The agent which destroys elastic tissue in the body is as yet unidentified. Metchnikoff thought it was a material that grew primarily in the colon. Of this, however, there is no conclusive evidence. Metchnikoff died before he was seventy.

But the theory is both plausible and defensible that some such organism with a predilection for elastic tissue does find its way by stealth into the human system and so far has eluded detection and classification as the spirochete did for so many years and as the organism of the eruptive diseases have done up to the present time. The incidence of senility can be justly charged as due to excusable Ignorance. After all, human destiny, so far as this world is concerned is bound up in the three V's. Volume of infection, virulence of infection, and vital resistance of the victim. Reduce or eliminate the first and second, increase the third and the answer is a long life and perhaps a useful and a happy one. It is also refreshing to know, that if volume and virulence can neither be reduced nor palliated, they can always be diluted by the introduction of fluids into the system. Therefore, anything that will tend to the promotion of the consumption of water or its equivalent is a means toward a noble end and should be encouraged as much as possible even if it becomes necessary or feasible to add certain soluble ingredients that stimulate a wholesome thirst of unusual proportions.

II. Suspension of function is next in importance.

A very distinguished physician of my acquaintance who has proven his right to an opinion by living in to the nineties said, "If you wish to live a long time, keep yourself always a little bit puny." That statement has in it a preachment against the universal fault of over-eating and it is so quaintly expressed and so pointedly put that it should carry conviction and lead people to realize the evils of burdening the organs with a surplus of organic material to be metabolized and properly eliminated. If one is "puny" one does not eat. The ancients fully realized the importance of giving the functions a vacation by designating special periods of prayer and fasting. To gain the consent of the people to thus subject themselves to the discomforts of foregoing their usual indulgences, the authorities sanctified the procedure as a holy ritual. The voice of nature is more clearly expressed in her admonitions not to eat too much than any other message she imparts. We humans should take a lesson in this from the brute kingdom. The very first evidence of illness in any of the lower animals is his refusal of food. Many of the minor ailments can be promptly cured by refusing to take food for a reasonable period of time, thus leaving a large part of the natural forces free to combat the invaders and check the invasion. The large number of afflictions that can be cured by the simple procedure of resting the organ involved is almost incredible. When we speak of rest in this connection, we do not mean resting the entire body, neither do we mean diverting the energies, but what is meant is suspending the function of the organ involved.

About 1840, Mr. Hilton, an English surgeon, wrote a book which remains today a classic in medical literature. The title of which is "Rest and Pain." He dwells extensively on how parts of the body afflicted by injury of disease will spontaneously seek positions that are most favorable to repose. Thus. study and application of the three R's. is essential to longevity. The three R's. in this connection do not refer, as one might suppose to reading, riting and rithmetic, but to rest, relaxation and repose. It is one thing to rest the entire body and quite another to rest some particular organ or portion of the body. One is quite simple and is almost a universal accomplishment. The other requires the education, technique and highly developed resources of a trained physician. Suppose one is tired by physical exertion. The matter of lying down and going to sleep is quite simple and the obvious thing to do. But, suppose one must rest the heart for a leaky valve or a stomach for an ulcer or a leg for a fracture, the technical nature of such demands is quite apparent.

III. Infections and Antiseptics.

As has already been stated, 86 per cent of all deaths are caused by either chronic or acute infection. This is the ratio as based upon present knowledge. Judging the future by the past, it is fair to presume that as knowledge increases and newer forms of infection come to be recognized, this percentage will increase until this undiscovered zone which holds the fourteen per cent will be explored and exposed. Its mysteries will be sinister seclusion and baffling concealment. Just one more spark of genius is all that is needed to finish the job he all but completed. Who will supply that spark? Do not let any doctor think that because he is detached and perhaps working alone without laboratory facilities or special training that he is immune to the inspiring influences of noble aspirations or cold to the impact of the flint of high achievement. No man can foretell from whence the luminous products of attrition may issue. Remember the humble environment in which Robert Koch labored to isolate and identify the tubercle bacillus. A small remote town in Germany was the area of his activities and his kitchen was his laboratory. Numerous examples illustrating the humble and unexpected sources from which great discoveries are produced could be cited almost without number. Crawford Long and Ephraim McDowell are examples.

There still remains a larger field than was ever dreamed of to test the resources of the explorer. The endocrines are beckoning and challenging the pioneer of the prehensile mind, the hormones, the sympathetic nervous system and its subsidiaries. The glandular secretions, and their relations are waiting to be explained to a waiting world. The correct estimation of individual resistance to any shock or insult to the vital organs and many more problems await the solvent power of midnight oil and the magic spark of genius.

Ever since Lister published his discoveries concerning antiseptics, their effects and mode of action have been distorted in the public mind by the cupidity of commercial interests. Unscrupulous advertisement has misled the public and caused them to attribute powers of both cure and prevention to substances containing antiseptics that cannot be realized. In that way people are led to assume unwarranted risk and exposure expecting antiseptics to provide protection. It must be thoroughly understood that a germ must be brought into direct contact with antiseptic agents before it can in any way affect them. It must be remembered too, that germs are also endowed with the divine faculties of self-preservation. They do not come out in open places and invite themselves to slaughter. On the contrary, they hide in the obscure and hidden recesses of the body that are invisible even to the microscopic eye. They fortify themselves in fortresses of fatty tissue that is inpenetrable to aqueous solutions, thereby rendering some of our noblest efforts at antisepsis futile. This situation can best be illustrated by the example of the farmer spraying his barn to exterminate the rats. All aqueous solutions of antiseptics are of either doubtful value or have none whatever. Killing germs in vitro (test tube) and in vivo (body tissue) are two vastly different problems. Any reliance upon antiseptics without due consideration of ways and means of establishing the necessary contact is doomed to failure and may lead to fatal consequences. After all, there is only one antiseptic in which complete reliance can be found and that is heat. A temperature of 160° F. or more. Next to that, the factor of safety deserving the greatest degree of confidence is the basic rules of cleanliness typified in soap and water and vigorous application.

May I call your attention to hypertension, the death rate of which grows more and more alarming every day on account of its rapid increase. How do we get that way? Not by trying to acquire and possess the material things necessary to our happiness in youth and for the protection of old age, but by extending every nerve and fiber to equal or surpass the commercial and social accomplishments of our neighbors and friends. Tension means strain and hyper means too much. Too much of anything is poisonous. If the sacrifice were made in the interest of some nobler purpose it might be condoned or even encouraged, but when it is considered that the motive is both ignoble and hurtful, no defense can be successfully advanced. Why one should knowingly feed his own vitals into the maw of an ever increasing vanity is beyond human comprehension. This strain we are talking about, remember is not muscular, bony or ligamentous, but it involves the central nervous structures which "when once destroyed can never be supplied." There also seems to be an affinity between obesity and hypertension, so you fat people look out.

V. Individual responsibility.

In late years our governmental authorities have assumed so much power of a parental character that the necessity for self-protection barely seems to exisit. As a result individual responsibility is rarely acknowledged or assumed. I am in hearty accord with all public health functions and it is with admiration and approval that I view their various administrative and executive achievements. But in presenting this essay, I am endeavoring to revive, if possible, a consciousness of individual responsibility. One should by no means lay the whole burden of the preservation of his health and life upon the public officials. He should take a personal interest in himself and his family, thereby, suplimenting and augmenting the efforts being made by the various officials to prolong life and secure comfort.

It is quite true that certain phases of the health problem can only be met by constituted authorities and that is being done in the most skillful and effective way. But, however, well authorities may function and regardless of the numerous provisions that are made for community interest and mass protection, the individual is not absolved from his share of vigilence and the exercise of reasonable skill and care to protect the health and comforts of himself and family. It has been estimated that if individuals would acquire and apply the health knowledge now available, the span of life could be increased from 60 up to 100 years.

VI. Focal Infections.

Out of respect to public sentiment, I must mention, "Focal Infections" as public enemy No. VI. This is no doubt the direct source from which is distributed a large fraction of the invalidism, acute illness and even death which beset people. But, I think the incidence of the infirmities derived from the most popular foci is over-estimated. Teeth, tonsils and gall bladder more often being charged as malefactors than any other offenders. They are held responsible for harboring and supplying toxic elements to the exclusion of many other sources. The prevalence of the belief in the guilt of these three organs is so universal that most doctors refuse to treat a patient until he has his teeth removed and the only contraindication against tonsillectomy is a real bad case of lock jaw and draining the gall bladder is a pre-requisite to being presented at court. When one considers that if the mucous membrane lining the alimentary canal was spread out it would cover an area equal to that of the skin of the entire body and that every inch of that area is an absorbing surface, one is struck with its capacity as a potential atrium for entrance of noxious substances into the system. Not only its vast area, but also the constant contact it maintains with the liquid and semisolid material so well qualified to furnish culture media for almost all forms of bacteria offers a convincing array of evidence of its important role in the tragedy of systemic infection.

VII. The other two dimensions. Breadth and Depth.

Concerning the other two dimensions of the living art, namely Breadth and Depth, professionally we are nothing more than amateurs. Breadth implies the scope of one's interest and Depth the range of one's sentiment. Either one of which requires special talent and peculiar appitude. There are men like Howard A. Kelly and Charles Penrose whose circle describes an arc that includes nearly every phase of human interest and like Oliver Wendell Holmes and Wier Mitchell whose sense of vision plumbed the uttermost depths of human emotion and stamped their names forever upon the minds and hearts of their countrymen.

Indeed, there have been doctors who distinguished themselves in every sphere of human endeavor in addition to their own chosen vocation, science, art, literature, music, economics, statesmanship, war and religion. They illustrate what I mean by the breadth and depth of living. On the other hand, there are shining examples of men and women outside of professional medicine who are better known and loved for their contributions to medicine than they are in their own special fields. Louis Pasteur, the author of modern medicine, never received an M. D. degree. Joseph Lister's father who was a wine merchant, completed the first compound microscope. Leevwenhoek, who first studied microscopic bodies was a Dutch dry goods merchant and to Ben Franklin we owe the use of spectacles and the designing and founding of Blockley Hospital, the oldest in the United States. Even Helmoltz, who invented the ophthalmoscope was not a doctor. These instances are as examples of blessings vouchsafed to medicine by the breadth of the lives of those outside the profession. Length of living is an inherent instinctive impulse. Depth and breadth are contributed by unknown sources of vital energy that elaborate the simple elements of existence into marvelous faculties of scope and comprehension. The most important one of these various potencies is the resolution and the will of the individual. The capacity of achievement is measured by the sincerity of the desire to achieve and the nobility of the purpose involved.

Thus, I am thoroughly dedicated to the doctrine of Longfellow,—

"Lives of great men all remind us
We can make our lives sublime,
And departing leave behind us
Foot prints on the sands of time."

## ORATION IN MEDICINE

## THE HOSPITAL AS A COMMUNITY PROBLEM*

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From the earliest times medicine always has kept well to the forefront in the march of civilization. Like advancement in all other lines of human progress its greatest victories have been won in modern times. Of all the many marvels of scientific progress, in every direction, during the past century, not the least is that contributed by the achievements of medical science, in discovering the causes of diseases and devising sure methods for their prevention and control. A just evaluation of these achievements is practically impossible. But it is well within the mark to say that in value to mankind, actual and potential, they are excelled by no accomplishments anywhere in any field of human endeavor.

The pioneering age of medicine developed the rugged individualist. The golden age of the last few decades has been characterized by specialization and centralization, with the result that large clinics have been set up in urban centers, with each member of their respective staffs a specialist in his particular line. A concommitant result has been the claiming by the cities of a steadily increasing percentage of recruits to the profession, with a consequent and correspondingly decreasing supply available for the rural districts.

With the coming of the economic crash four years ago, progress has been almost at a standstill. Since then both business and the professions largely have been marking time. Today the economic structure is still torn asunder, though rehabilitation now seems definitely under way; insurance companies, banks, agriculture, manufactures and, in short, every industry in the land is submitting to Government control in an effort, not to go in any certain direction but to get from something—the depression; at Washington changes are taking place which materially will affect the life of every citizen in the country. In such conditions, we may well ask "What does the future hold for medicine."

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Though we may dislike changes; though we may like to dwell upon the profession's noble history and sacred tradition, medicine can not, will not, remain static. It must meet the needs of the people; it must accommodate itself to changed and changing social conditions. If the future course of medical practice is not determined within the ranks of the profession itself, it will be regulated from without. Already State Medicine, in more or less modified form, obtains in practically every civilized nation on earth except ours. And in this country murmurs and *swelling* complaints may be heard alike from rural sections and urban centers—in the one, because of the lack of proper medical care; in the other, because of the high cost of such care. These mutterings have been echoed in the halls of State Legislatures and of the National Congress, with the result that surveys and reports have been made and legislation proposed to correct the alleged evils and shortcomings. Our immediate concern, however, has to do with our own State.

In 1931, Dr. J. S. Chambers and Mr. Harry R. Lynn, both of the University of Kentucky, published a complete survey of the medical service of the State, which has been drawn on freely in this oration. Just here it may be well to point out, in the first place, that Kentucky is a comparatively poor State, as is evidenced by the fact that, while the average individual in the Nation at large has a little more than six hundred dollars to spend during a twelve month, the average annual expenditure per capita of Kentuckians is only two hundred and thirty-five dollars. In the second place, Kentucky is essentially a rural State. Within its confines are only seven cities with populations of twenty thousand or more each. And these cities, with the single exception of Lexington, lie on the boundary of the Ohio River. Cities with populations of between ten thousand and twenty thousand are only three in number. The total population of the counties containing the cities with ten thousand or more is, in round numbers, eight hundred and fifty thousand. The remaining one million, eight hundred thousand, approximately, live in small towns, villages and on farms. So, Kentucky's problems are problems largely of a rural people.

Dr. Chambers points out that in 1900 Kentucky had, in round numbers, a population of two millions, with approximately four thousand physicians. In 1930, the population had increased to two million, six hundred thousand, while the supply of physicians had decreased to about three thousand. That is, Kentucky had, in 1930, approximately six hundred thousand more population and about one thousand less physicians than in 1900. The decrease in number of physicians may, we think, be largely attributed to the raising of entrance requirements at medical schools and to the consolidation of the five schools of medicine in Louisville in the early nineteen hundreds.

In exact figures, Kentucky had in 1930, one physician for every eight hundred and seventy-nine persons, while the ratio for the country at large in that year was one physician to every seven hundred and fifty-three persons. If the figures for Kentucky could be relied on to remain constant there would be little need for concern about a future shortage of physicians. But these figures are not remaining constant. For the past few years the population of the State has been increasing at the rate of approximately twenty thousand a year, while the number of physicians has been decreasing at the rate of about fifty per year, nor is this all. As Dr. Chambers points out, ages and distributions are of more significance than numbers. Of the two thousand, eight hundred and sixty-one physicians in Kentucky in 1930, one thousand, eight hundred and thirty-four or sixty-four and four-tenths per cent were fifty or more years of age. Reckoning sixty-five as the age of retirement, a total loss of one thousand, eight hundred and thirty-four or sixty-four and four-tenths per cent of these physicians by death or retirement may be reasonably expected within the next fifteen years. During the past decade, recruits to the profession in the State have averaged approximately thirty-six per annum. Assuming that these conditions continued, there will be less than sixteen hundrd practicing physicians in Kentucky fifteen years hence. In other words fifteen years hence there will be only fifty-five and nine-tenths per cent of the number of physicians of 1930 in the active practice of medicine.

Our present problem, however, has to do not with an existing shortage in the State as a whole, but with the manner of distribution. Fayette County, for example, has today, approximately, one physician to every four hundred and twenty-five persons and Jefferson County has one physician to about every five hundred persons. Every other county containing a city of twenty thousand or more has approximately a similar ratio. In marked contrast to these, Edmonson County has only one physician to serve a population of more than eleven thousand, four hundred. Edmonson County manifestly needs more physicians: perhaps Louisville and Lexington might get along with a few less. The examples quoted constitute, of course, the extremes; between them are to be found areas with various ratios of distribution. During the last two decades the cities in Kentucky, with less than one-third of the State's total population, have drawn more recruits than all the rest of the territories outside of the cities combined.

The increase of physicians in the cities may be accounted for, largely, by the general influx to urban centers; whereas the decrease in the rural sections has been compensated for, in part, by improved roads; more rapid modes of travel and extension of telephone service which together make it possible for one physician to serve a larger clientel than formerly; and to the excellent work of the various health departments in stamping out typhoid and other communicable diseases.

A glance at the map helps to visualize distribution. Counties having a ratio of one physician to one thousand population or better seem to be grouped around Louisville, in the Bluegrass section and in the Western part of the State. These sections are adequately supplied and may well be left to solve their own problems. But the remaining counties, approximately one hundred in number, are bearing the brunt of the loss. The time elapsed since any of these have had recruits ranges from five to forty years. As a consequence, the ranks of the profession within their borders are thinning; physicians remaining are growing old and are being called upon to do the impossible task of caring for from two thousand to eleven thousand people, each, under the most unfavorable circumstances—bad roads, poor telephone service, no hospitals, no x-rays or laboratories and, in many instances, without the aid of a well organized system of preventive medicine.

Now let us have a look at the State's other facilities for medical care. Take the hospitals for example. Their distribution is very much the same as that of the doctors. That is to say, they are to be found, in most part, in the seven cities of twenty thousand or more population, located along the Ohio and in the inland city of Lexington. The counties containing the cities having populations of ten thousand or more have a total population of approximately eight hundred and fifty thousand. Their hospital beds total two thousand, eight hundred and ninety-three or about one bed for every two hundred and ninety-five persons. For the remainder of the State there are one thousand, three hundred and forty-eight hospitals beds, or approximately one bed for every one thousand, three hundred persons. This includes general hospitals only, as enumerated in the hospital number of the A. M. A. Journal of April, 1933. The records show that in many of these counties where there are but few physicians and no hospitals, there is also no effective public health organization. What then, is the solution of this vital question? Many and varied are the answers. Only a few of the most plausable will be mentioned here.

First: State Medical Colleges, with lowered standards and shorter terms, located in different sections corresponding with those in which our normal schools are situated. In other words, putting the State into mass production of poorly equipped doctors. The people would not subscribe to that.

Second: State Medicine or the subsidizing of doctors for the needy vicinities, with all the attending evils of political preferment. The profession would not consent to that.

Third: Compulsory sickness insurance, with its consequent abominable pannel practice which has proved so unsatisfactory to the profession in so many European countries. Nobody wants that.

What, then, is the solution?

Glasgow and its Community Hospital offer a solution, not a vague theory that might work, but a vital, working solution. Just a bit of history in order to get this clearly before you.

Glasgow is one of the thirteen towns of Kentucky having a population between five and ten thousand. It is located in Barren County, in south central Kentucky—a strictly agricultural community. It is, perhaps, no better and no worse than its twelve sister towns of like size. Twenty years ago there were eighteen doctors in the county, divided about evenly between the town and county. The roads were mud, the telephone service was bad and the doctors plodded their weary way from house to house. The size of a physician's practice was largely determined by the number of cases of typhoid he had. Cases of obscurity in diagnosis were sent by rail to the city. A health department was not thought of. The general attitude of the people seemed to be that the old oaken bucket and the "four hole" privy, which were good enough for their fathers, were good enough for them. There was not a test tube or microscope in the county.

About this time, two aspiring young men with hospital experience, hung out their shingles in the town and began doing a bit of scientific practice, with now and then a surgical operation. The latter was always an event in the community, attended by most of the doctors and all the neighbors and played up, in glowing head lines, in the local papers.

Years wore on and an old frame cottage was converted into a hospital, so-called by its sponsors and variously alluded to by critics as the "Beaver Board Hospital," (it having beaver board partitions), the "Slaughter House," the "Human Abattoir," etc. But the public generally lent their good will and approval to it as a step in the right direction. Meanwhile, every source was solicited for funds—the city, the county, churches, etc. Finally, the Commonwealth Fund of New York became interested and, in 1927, made a proposition to the effect that, if the community would furnish the necessary grounds—ten acres—and bear one-third the cost of construction, it would build and equip a fifty-bed hospital and a nurses' home. It was estimated that the local community would have to raise one hundred thousand dollars as its one-third. At first, this was thought to be an impossible task. However, every local organization became interested; the press concentrated on the project, enthusiasm ran high, committees solicited donations. At the psychological moment, a banquet was held and, after several impassioned speeches pointing out the rare opportunity that was ours, pledges were called out, ranging from one hundred dollars to ten thousand dollars. Still there was a shortage of fifteen thousand, when suddenly Mr. T. J. Samson, changed his pledge from ten thousand to twenty-five thousand, making a total of one hundred thousand dollars, and the hospital was assured.

The Thomas J. Samson Community Hospital is a two story, brick, fire proof building, with full basement. In the basement are located the kitchen, dining room, clinical laboratory, laundry, storage rooms and offices for the out-patient department. The center of the first floor is given over to waiting rooms, offices of the Superintendent and record clerks and the telephone exchange. The west wing of this floor is devoted to colored patients, the north to isolation cases and the south to rooms for white patients. On the second floor are the operating room, delivery room and the x-ray equipment. There is no more modern, better equipped hospital in the State. It has met the requirements of the American College of Surgeons and is a member of the American Hospital Association. Only trained nurses are used; there are a nurse superintendent; a resident physician, who must have had at least one year of hospital experience; and a clinical laboratory and x-ray technician. The Commonwealth Fund assists in the selection of the resident physician and for the present subsidizes his salary.

The hospital is operated by a Hospital Board, the members of which were selected by the donors. This Board is self-perpetuating. No doctor is eligible for membership. Every physician in good standing within a radius of thirty-five miles is eligible for staff membership and no doctor is shown preference over another. The intimate relationship existing between doctor and patient is sacredly maintained. All surgical specimens are examined by a capable pathologist in Louisville.

The Commonwealth Fund, as well as all other students of the subjects, has noted the fact that, "in spite of the close relations between public health and the broader field of medicine, much more attention has been paid in this country to the development of public health service for rural communities than to the betterment of their basic medical service."

The purpose of the Fund is not merely to supply a place where the sick can be cared for, but to improve the general well-being of the community. Its educational progress which centers around the hospital, is perhaps, more important than the hospital itself. Believing it more practicable to use the material at hand rather than supply new, the Commonwealth Fund offers a limited number of fellowships available for those physicians and dentists, who wish to undertake post-graduate study. This fellowship consists of four months course in any recognized medical college within the United States and carries free tuition and traveling expenses, together with a monthly stipend of three hundred dollars during the fellowship period. To date, twenty-one physicians and three dentists have availed themselves of this opportunity and others will likely do so as soon as economic conditions will permit.

A young physician, with at least one year's hospital interneship, serves as house physician and first assistant at all operations. He brings ideas fresh from the medical centers. Short institutes of one or two days are held each year, at which one physician and one surgeon alternate in speaking. These men are usually selected by the staff and for the present are being paid by the Fund. In the past, three institutes have been conducted by

Matas, Hersley, Stewart Roberts, W. D. Haggard, Virgil E. Simpson, Philip E. Barbour and others of like ability. In addition the staff seeks and is obtaining a closer relationship with the Medical Department of the University of Louisville. To this end, from time to time, one or two men from the University appear on the program at the monthly staff meeting. All this is being done to improve the standard of practice in the hospital area, both at the hospital and in the home.

The following is a brief summary of the work done in the Hospital in the year 1932, which was the worst year of its history, including even the first half of 1933:

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|---|---|
| Total patient days | 5681 |
| Total number admitted | 887 |

DISCHARGES

| | |
|---|---|
| Medical | 280 |
| Surgical | 520 |
| Obstetrical | 43 |
| Newborn | 38 |
| Total | 881 |

| | |
|---|---|
| Total number of examinations made by the clinical laboratory | 5368 |
| Total x-ray examinations | 152 |

OUT PATIENT DEPARTMENT

| | |
|---|---|
| Total number of visits | 1145 |
| Follow up visits recorded | 205 |

The staff of the hospital is capable of giving skilled medical care to practically all cases that present themselves, the only exceptions being Neuro-psychopathy, brain surgery and bronchoscopy and the removal of foreign bodies from the bronchial tubes.

In the matter of preventive medicine the Fund has been no less active. Before its advent to the community, there was only a part time health officer and a health nurse in Barren County. Thanks to the Fund's assistance, it now has a full-time health unit, carrying the following staff annd co-operative budget:

STAFF

Health Officer
2 Public Health Nurses
1 Sanitary Inspector
1 Secretary

All services of Hospital clinical-laboratory are available to Health Department.

BUDGET

| | |
|---|---|
| Barren County | 3,000.00 |
| State | 3,300.00 |
| Commonwealth's Fund | 5,700.00 |
| Total | $12,000.00 |

During the year 1932, this Unit gave four thousand, three hundred and eighty complete typhoid immunizations, fifteen hundred Dick tests and four hundred and ninety-six complete scarlet fever immunizations. Three thousand, one hundred and fifty-five school children were examined and a general educational program was carried on in the newspapers and through the media of hand bills, picture shows and motion pictures. In addition to all that, a vast amount of sanitary work was effected. Just now the Unit is attacking the milk problem. Necessary legislation is in process of enactment and an educational program is under way, which, within a short time, will assure a Grade A milk supply to the city. In short, it is the purpose of the Fund to make this hospital area an ideal rural community; to bring to it, by means of preventive and curative methods, every advantage, from a health standpoint, that obtains in the larger cities. Already great progress has been made and the pace will increase as times goes on. There is need for closer cooperation on the part of the physicians, who in this, as in all things else, are reluctant to forsake the old order and accept the new until it has been successfully tried.

MAINTENANCE

This is the "pain in the neck" of all general hospitals. The contract with the Fund specifies that the trustees are to maintain the institution. At the 1930 session of the General Assembly, a bill was passed and became law, empowering any county having a hospital in a fifth class city to collect a levy of five cents on the hundred dollars for maintenance. The hospital operated under this law for three years, until it was declared unconstitutional by the Court of Appeals. Since that time, the Fiscal Court has paid for Barren County's charity, but refused to pay for outside charity, since the surrounding counties being served by the hospital refused to contribute to its support. Charity patients from these counties are now not accepted for hospital treatment. In all fairness, it must be said that the Community Hospital could not have been maintained at its present high standard, had it not been for the support received from the Fund. Just now some four to five thousand dollars are being expended on improving the grounds. Three thousand of this was given by the Fund. There is need for closer co-operation on the part of the surrounding counties in the matter of maintenance, if the hospital is to attain its greatest usefulness.

CONCLUSIONS

1. In the Nation as a whole, perhaps, there is a sufficient number of medical graduates each year to supply the demand, but rural Kentucky is not receiving its share.

2. There is no present shortage of physicians in Kentucky as a whole; the difficulty lies in their distribution.

3. If present conditions continue, there will be a real shortage within the next decade, with consequent accentuation of faulty distribution.

4. It is the opinion of the Commonwealth Fund that establishment of community hospitals in well selected locations will influence young doctors to locate in these rural districts. In support of this opinion, attention is directed to the number of young men who have located within the several areas served by hospitals in the State. Before the advent of the Community Hospital at Glasgow, there had been no recruits to the profession in that area for more than twenty years. Since then there have been four—two in the town and two in the outlying territory.

5. The Fund's opinion is submitted for your consideration. The details of raising the money for construction and maintenance and the selection of locations may well be left to others.

6. In his inaugural address, President Hoover said: "I trust time is not far distant when every county in the land shall have a full-time health department." Of course, that was spoken in those halcyon days, "when there was to be a chicken in every pot and every man was to have a garage as big as a barn." Conditions are vastly different today, but surely it is the hope of every doctor, and of every right thinking citizen as well, that the time is not far distant when every county in Kentucky shall have an effective health program. There is not, nor can there be any real conflict between preventive and curative medicine. The practicing physician and the public health officer are, in no sense, competitors. They are co-workers in the same field. Each has his own distinctive service to perform. These two services, however, are directed to a common end and are so intimately related that only by close, intelligent and wholehearted co-operation on the part of both can full measure of success be attained by either. Occasionally differences may arise, but when they do, they are traceable to tactlessness on the part of the health officer or to failure on the part of the profession fully to understand the purposes of a given public health program—one or both.

7. It may be neither practicable nor desirable, but, to an outsider, it does seem a pity that the State has no part in the financial support of the only medical school within its borders. There is need in Kentucky for a closer relationship between the medical college and the rural doctor. They may be mutually helpful.

## ORATION IN SURGERY

## TREATMENT OF PERFORATIVE APPENDICITIS WITH PATHOLOGY AND PATHOLOGICAL PHYSIOLOGY AS THE BASIS*

E. W. Jackson, M. D., F. A. C. S.

Paducah.

The death rate from appendicitis in this country has reached such proportions that it has become one of the most serious problems confronting the medical profession.

Christopher and Jennings, in a report on the mortality of appendicitis, show that in the United States, for 1930, it was 17 plus per 100,000 population. In Paris, France for 1929, it was only 6.8 and in England and Wales, for the same period, it was 7.J per 100,000 population.

Our death rate from most all other surgical diseases has been reduced during the past few years. But in the same period of time, it has been constantly increasing from appendicitis, and we are now credited with having the highest death rate from this disease of any civilized nation in the world.

In the treatment of these cases there are three points which we should constantly keep before us, first, appendicitis is not a minor ailment which can be lightly passed over, but one which is always a potential of danger, and which may require all the knowledge and resourcefulness one can command. A glance at our mortality statistics should prove this point beyond question. Second, the mere fact that a case happens to be surgical in nature, is not always in itself an indication for operation and when operation is necessary, the time when it should be done, is as important as its execution. Third, the operation is but a single step in the treatment, the pre-operative and post-operative management is often the most important part of it, and frequently the determining factor in the outcome. In short, these cases demand more than a knife and pair of scissors.

The treatment of perforative appendicitis, involves not only the appendix per se, but also the succeeding pathological processes which result from the peritoneal contamination, incident to the perforation. Briefly, these are perforation with soiling of the peritoneal cavity, localized peritonitis, abscess formation, diffuse spreading peritonitis, adynamic or paralytic ileus and disturbances of the water and chemical balance. It is the prevention and treatment of these processes, towards which our efforts must be directed.

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In order that we may find a basis for treatment we will first consider the pathology and pathological physiology from the viewpoint of the effects which they produce, and the indications which they afford for treatment. With contamination of the peritoneum, infection takes place and a beginning peritonitis results, from this point the progress is variable, depending upon the extent of contamination, the virulence of the infecting organisms and the resistance of the patient. Either one of two things may occur, first, the omentum and coils of intestine assisted by adhesions, may so arrange themselves about the area of contamination, as to form a protective wall against diffusion and confine the process within definite limits, this localized peritonitis may be followed by a subsidence of the infection and ending by resolution, or it may result in the formation of an abscess, second, the infection may spread to indefinite proportions, and result in a diffuse or generalized peritonitis, this in turn, produces more or less exudate, and as a rule, the most serious and dangerous cases have the least amount.

The peritonitis may occasionally be the cause of death rather early in the process, from an overwhelming infection, or later on, by the slow and continued absorption of septic material. But in the majority of cases, death is not due primarily to the absorption of bacterial toxins from the infection, but is the result of an adynamic ileus, which is secondary to the peritonitis and causes death by dehydration and intestinal toxemia.

Adynamic ileus, may be defined as a functional paralysis of the intestinal tract, which in effect is an intestinal obstruction, with such dire symptoms and results, as go with that disease, (Intestinal Obstruction). It begins as the result of stimulation of the splanchnic sympathetic system, due to the peritoneal irritation, and is particularly prone to occur in a nervous apprehensive and frightened individual. It begins primarily as a nervous phenomenon, but as it progresses, it becomes inter-locked with a disturbance of the chemical and water balance, and the two processes soon fall in to the proverbial vicious circle, in the matter of both cause and effect, and for the sake of brevity they will be considered together in so far as it will be practical.

With the majority of patients who die from appendiceal peritonitis, it is this ileus, which strikes the death dealing blow, on account of the dehydration and toxemia, which in the last analysis, is the actual cause of death. For this reason, adynamic ileus should be under consideration from the time we first see the case until the final termination, and at the very onset, we should lay our plans to combat it, for after all is said and done, it will be our success in handling this condition, which will determine the ultimate outcome in the large per cent of cases.

Ileus is initiated by the splanchnic stimulation, which causes a loss of tone in the intestinal wall and arrest of peristalsis, and consequently, a reduction or loss of propulsive force. This stimulation at the same time produces a strong contraction of the ileo-cecal sphincter, thus we have a diminished propulsive force from above and an increased resistance at the outlet, to operate together, in producing an obstruction. This is a phase which has an important bearing on the treatment, in that it furnishes a combination of two opposing forces, where the one is abnormally weak, and the other abnormally strong, and strengthening the power of the former, or overcoming the resistance of the latter, will aid in relieving this functional obstruction.

The arrest of peristalsis begins in an irregular manner where some segments contract and others block the peristaltic rush, and produce as an early symptom, the well known and familiar gas pain. Let it be said here, that this gas pain is but the expression of a mild ileus, and should be regarded with appropriate concern. With the drop in tone of the intestinal wall, there is an impairment of the circulation on the venous side, which interferes with the normal exchange of gases, and therefore, impairs the most important process by which the normal gas balance between the intestinal canal and the blood stream is maintained.

Gas is the dominant factor in the progression of ileus, after it has once obtained its start. It is the thing which really brings out the "fire-works," and if we can control it we can cover a multitude of the sins of perforative appendicitis. The big problem is where does it come from and how do we get rid of it? Very little comes from fermentation and considerable amount comes from swallowed air particularly by nervous patients. Alvarez has found, however, that this does not reach the intestine while they are in the upright position, but McIver and others have shown that with the patients recumbent in bed a rather large amount of it reaches the intestine, and this is a troublesome form on account of the nitrogen content, which does not readily lend itself to the process of exchange, a very large part of it is excreted from the blood stream into the intestinal canal and this function is increased in ileus. In the elimination process, only a very small part is passed through the anal canal. The vast amount of it is absorbed through the intestinal mucosa, carried into the blood stream and eliminated by the lungs. Deductions from the work of McIver, Redfield, and Benedict, (as quoted by Stout) would indicate that the small intestine alone, is capable of absorbing more than 4,000 cc per hour. There is a marked decrease of this absorptive capacity in ileus. We therefore, have on the one hand, and increased capacity for exciting gas from the blood stream into the intestinal canal and on the other, a decreased capacity for its absorption, and the higher the pressure is raised the more marked these alterations in function become.

With increase in pressure, the mucosa takes on a much greater capacity for eliminating fluids into the canal, and at the same time, there is a decreased capacity for absorption, therefore increasing the fluid content, which added to the gas, raises the intestinal pressure still higher. According to Van Zwalenburgh, the average venous pressure in the intestinal wall varies between 4 and 10 mm. hg. and any intraintestinal pressure above the normal produces a corresponding resistance to the venous return flow by exerting its force against the intestinal vascular system and if permitted to become sufficiently high, it will result in a complete intramural strangulation and disintegration.

Reverse peristalsis sets up and produces a regurgitation of the intestinal contents into the stomach, from which it is vomited. Vomiting of large amounts of material containing the digestive and upper intestinal fluids, causes a loss of the chlorides, which together with those lost by failure of reabsorption in the small intestine, results in a hypochloremia and alkalosis, as demonstrated by Hayden and Orr. With this condition, the body is unable to hold and utilize water and dehydration takes place.

While alkalosis is the rule, in ileus, due to excessive loss of chlorides, there is also a loss of some of the fixed bases, and the fact must not be lost sight of, that there may be such excessive loss of these fixed bases as to produce acidosis, in spite of the chloride loss. On account of the loss of chlorides with dehydration and excessive protein destruction, there is an increase in the blood non-protein nitrogen and urea-nitrogen, which however, subsides with correction of the water and chemical balance.

Under this high intraintestinal pressure, absorption of intestinal toxins by the blood stream probably occurs to a small extent, but the fatal toxemia, is due in large measure to transperitoneal absorption, on account of the toxins passing through the disorganized intestinal wall into the peritoneal lymph spaces.

This outline of the pathology and pathological physiology while not complete, should serve as a satisfactory basis for pointing out the therapeutic problems which confront us in the management of these cases.

It may be well to first discuss in some detail a few factors in connection with treatment which are fundamental, and which are constantly presenting themselves for consideration, namely, disposition of the appendix, peritoneal drainage, intestinal drainage and restoration of the normal water and chemical balance. And they will be considered in the order named.

Disposition of the appendix: Immediately after perforation has occurred and before peritonitis has developed, there can be no room for argument over the question. At this stage of the disease it should undoubtedly be removed, providing it can be done, without such unusual and dangerous difficulty as would serve to constitute a greater menace than its presence, and in which case entire dependence on drainage to prevent a spread of infection, would be a safer procedure. In this case, the appendix still constitutes the major focus of infection, and its removal should permit recovery without the development of a damaging degree of peritonitis. If the peritonitis is only slight in extent, it still should be removed for the purpose of eliminating the source of infection and permitting recovery without constant reinfection. But after the infection has developed to the point of abscess formation or spreading peritonitis, it assumes a degree of less importance, it has then already done it principal damage, and the resulting peritoneal infection, has become the chief element of danger, it merely occupies the place of the match, which started the conflagration. The infection contained within the appendix is so small in comparison with the peritonitis, that from the standpoint of infection, it may be practically ignored. Of course, where it sloughs at the base, it should be removed and the opening into the caecum closed. So from the viewpoint of recovery from the attack in hand, it is not always necessary to remove the appendix, but where it can be done without additional risk, it should be removed for the future welfare of the patient.

Peritoneal drainage, discussing the relative merits of the various methods of draining the peritoneal cavity has been a time honored custom. Now, after years of argument, the growing tendency is to do less and less draining, largely because we have finally learned that we do not ordinarily succeel in removing a great deal by drainage anyhow, except where we have a localized or walled off collection, in which case it is a very valuable and satisfactory procedure. Where infective material is amenable to drainage, the drain should be of such material as will act as a drain and not a plug, and should be so placed, as to give the most direct approach possible, and at the same time secure all the obtainable advantage of gravity. Drainage of the general peritoneal cavity is practically impossible. It is a difficult and tedious matter to remove all purulent material from between the intestinal coils and out of dependent fossae with the abdomen open and sponges and a suction apparatus to aid us, let alone, getting it out spontaneously through a small drain, we can usually get out part of it, but it is doubtful if any considerable amount is often removed, except where we have direct access to a localized collection. Many men are mopping out or removing the pus by suction and closing without drainage, and reporting good results. This is only done of course, where the appendix has been removed. I personally believe that there are many cases which would do as well or better without drainage, but I will admit that I have not developed the courage to try it, however, I am not so lavish about it by any means, as I used to be. In the matter of drainage, I cannot exactly say that we have been working on the wrong problem, but we have spent so much energy on one, that the other has all but gotten away from us, we have argued and worried over peritoneal drainage, until the more important intestinal drainage has been largely overlooked. When we devote more time and attention to this factor, we will see a marked reduction in our mortality.

. Intestinal drainage: By this we mean any measure which will cause the intestine to empty itself, whether by agents which stimulate a propulsive action and cause it to propel its contents through the natural channel, or by mechanical means, which lessen the resistance to its propulsive action and enable it to function with such remaining capacity as it has, or by both. This in my opinion, is the most important factor in the treatment of perforative appendicitis after it has reached the stage of peritonitis. Formerly we gave morphine with the idea of splinting the intestine or putting it at rest, but we have since learned that where the peritonitis is associated with ileus we already have too much splinting. Now, we are trying to overcome some of it, and secure intestinal activity, for relief of the ileus, which we have learned is the process which causes such dread of peritonitis. Platt and Miller, showed that morphine does not inhibit intestinal activity, but actually increases tone and peristalsis, we may therefore, explain the beneficial results which we have obtained from its use on this basis rather than upon rest. Alverez is of the opinion, that excessive doses sometimes produce reverse peristalsis, this would furnish an explanation for the empiric observation that with marked distention and regurgitant vomiting, large doses frequently aggravate the symptoms. Pituitrin has been tried extensively for the purpose of stimulating peristalsis but generally without results, physostigmine seems to have some beneficial effect in a fair per cent of cases, but intravenous hypertonic saline solution has proved to be the most effective agent for stimulating propulsive activity.

The thing which I especially desire to stress, is drainage by mechanical means. Repeated or continuous gastric drainage with a duodenal tube, is very beneficial in removing stomach contents and intestinal contents which have regurgitated through an open pylorus into the stomach, or what is still better when it can be accomplished, is transduodenal drainage, the application of a slight negative pressure is helpful in promoting this drainage and will frequently have a marked effect in relieving intestinal distention. Relieving the stomach of its contents keeps it at rest, and aids in preventing gastro-intestinal irritation. One of the most direct methods which we have for preventing or relieving these complications, is the use of a small enterostomy tube placed in the ileum. This will enable an impaired intestine to function to a much better advantage, by relieving it of the resistance of a contracted ileo-caecal sphincter, which it would otherwise be forced to overcome. By this measure the intraintestinal pressure is kept at the lowest possible level and the intestinal wall is not subjected to the amount of strain and damage to which it would be without it. This enterostomy is especially necessary if there is edema of the terminal ileum, as we frequently see, or if there is existing evidence of ileus. If not done at the original operation, it is strongly indicated with the advent of symptoms which are not promptly relieved by the use of hypertonic saline solution and the duodenal tube.

The Witzel method of placing the tube into the intestine is very satisfactory on account of the ease of execution and the rapidity with which the opening closes following removal of the tube. It should be placed just sufficiently high in the wall to insure a functioning intestine. Another very simple method, is to pass a tube through the appendiceal opening of the caecum and guide it into the small intestine. This is open to two objection: First, if the tube is short enough to insure against kinking in the intestine it may not reach beyond the damaged part, and second, unless it is Witzelized into the caecal wall there is likely to be a short delay in closure after the tube is removed. The tube should be closely observed to make sure that it remains open. If necessary at any time it can be cleaned by injecting saline solution through it. It is usually removed in about one week but can be left longer if necessary

This procedure is a life saving measure if used in time, but if it is to be of any value, it must be resorted to before the intestinal wall is permanently damaged, if reserved to be used only as a signal of despair, it will of course, do no good.

In my opinion there are three distinct advantages of this method over duodenal drainage especially in the severe cases, first, its more positive action, second, there is less loss of the chlorides and fixed bases which instead of being drained away through the duodenal tube may pass downward though the intestine for reabsorption, thus decreasing the degree of chemical disturbance and third, solutions can be administered through the tube if necessary.

The two principal objections raised against enterostomy are the fear of non-enclosure, and the time required for its execution. If it is properly done with a tube just sufficiently large to permit the escape of gas and fluids, and not placed so high that the digestive juices can interfere with healing, there should be no trouble at all, many of them stop draining intestinal contents within forty-eight hours after the tube has been removed. As to the length of time required for its performance, it is a very simple procedure, and is much easier and safer for the patient, and when indicated, will do many times more good than digging through a mass of adhesions and inflammatory material to remove an appendix, which has already done its harm. But any operation should always be under the control of judgment.

Spinal block has been recommended for the relief of distention, but does not seem to have met with very general acceptance, I personally feel, that while it may have a field of usefulness, an enterostomy under local anesthesia is the safer and more effective procedure in the large majority of instances.

Water and chemical balance: It is very necessary that the tissues have their required amounts of fluids, but the balance cannot be maintained without an adequate chemical balance, we may force all the water into a patient we please, but unless the element of chemistry enters into it, we will get a relatively small effect, forcing fluids into a hypotonic patient is like pouring water on sand, there is nothing to hold it and it filters through. It is more rational to bring the chemistry to as near the normal as possible along with the water, in order that it may be utilized and not rapidly passed out. The chlorides must be replenished, and it is necessary to furnish them through the administration of chloride containing fluids. Fluids by mouth defeat the very purpose for which they are intended, they are not absorbed and their presence in the stomach only aggravates the ileus, they can be given by the bowel, under the skin, or intravenously. Proctoclysis outside of simplicity, has very little to recommend it, hypodermoclysis and intravenous administration are both efficient.

Glucose cannot take the place of sodium chloride in hypochloremia, but is the treatment for acidosis when present. It furnishes nourishment and is a protein saver, but when given, should be in conjunction with saline solution and Ochsner suggests that insulin be added, to prevent a depressing effect upon intestinal function. Normal saline solution is usually sufficient for the mild cases, but when indicated a one or two per cent solution may be given by hypodermoclysis and any strength from the normal to a ten per cent solution can be given intravenously in such amounts as necessary to meet the requirements of the case. Orr suggests that in severe cases with vomiting and low chlorides saline therapy may be started with 500 cc of a 5 per cent solution intravenously, then normal saline solution in sufficient quantities to supply the necessary water may suffice to maintain the normal chloride level. A four per cent glucose in normal saline solution is very satisfactory for hypodermoclysis and ten per cent for intravenous use. Ringer's or Hartman's solution are used by many instead of plain saline, and should afford some advantage, in that they furnish a certain amount of the fixed bases, or instead calcium may be added to the saline and glucose solution. Solutions when given intravenously should be given very slowly, preferably by venoclysis. One point to remember in administering them is that these patients are already out of balance, and forcing a large amount into them without some form of intestinal decompression may in a measure defeat the purpose by causing it to be eliminated into the intestine, thereby increasing its pressure.

Treatment of the Various Stages at which the Disease may be encountered: The position which the patient occupies in bed has been the subject of considerable interest and will be, briefly discussed at this time, in order that the question may be disposed of and not be repeatedly coming up for consideration. The Fowler position has been used for many years, on the theory that absorption is less rapid in the lower part of the peritoneal cavity than the upper, and that by elevating the body, infection gravitates to the lower and lesser area of absorptive capacity. But Dandy and Rowntree have shown that toxic substances are absorbed from all parts of the peritoneal surface with the same rate and degree. Assuming that this is correct, it would appear that whatever effect the Fowler position has, if any, on infection above the pelvis, is to spread it by gravitation into uninfected areas. In this connection, the observation of Alvarez that it is impossible for swallowed air to reach the intestine with the patient in the upright position, and those of McIver, Benedict, and Cline that this air does reach it with the patient in the recumbent position, and has much to do with distention, are very interesting. They suggest to the writer the possible explanation of any benefit which may have been obtained from the Fowler position, by preventing swallowed air from reaching the intestine, and thus keeping down distention which has been attributed to an upward spread of the peritoneal infection. It has been my observation, that after ordinary abdominal operations many patients remain more free from gas when slightly elevated in bed. When turned off their backs they should be placed on the right side, this prevents a drag on the inflamed tissues of that side, has a tendency to prevent gravitation of the infection out into the peritoneal cavity, and gas in the stomach is more likely to be expelled through the mouth.

Cases immediately after perforation ~~operation~~ and before peritonitis has developed: These usually present a rather simple problem, the main thing is to remove the appendix without further contamination and clean out the infectious material. It is my practice to insert a rubber tissue drain, but many competent men are now closing them without drainage and reporting excellent results.

Cases with localized peritonitis: The area should be walled off from the general peritoneal cavity and the appendix removed, providing it can be done without undue exploration and trauma and the risk of spreading infection. The purulent material should be removed as gently as possible and a drain inserted. Many surgeons close these cases without drainage when the appendix has been removed, with good results. I can understand their theory, but I am still afraid of that patient who will not do well, however, I am positive that drainage is not always necessary, if we could only be sure of the ones who would not need it. In principle I am opposed to packs in the peritoneal cavity, but I believe under some circumstances their use is justified. If the pus has not overflowed and become diffused among the intestinal coils, in other words if the process has been effectively held to definite limits, the pack offers an effective method of holding it against diffusion into adjacent fields, by absorbing and holding it until a protective wall is well established, its removal, however, constitutes a rather serious objection to its use. Rubber tissue is probably the most commonly used drain, and while it has some weak points the patients seem to get along about as well from the standpoint of peritoneal drainage as with any other kind. In this type of case we must be on the lookout for adynamic ileus, if there is undue intestinal distention or if there is edema of the terminal ileum or about the ileo-caecal junction, we will give patients a better chance by doing an enterostomy, and many cases which do not show such gross evidence of these changes will do better with the aid of such a procedure. If at operation the peritonitis is found to be more extensive than anticipated and such that it would have been held for conservative treatment, had it been possible of pre-operative determination, we should undoubtedly do an enterostomy.

Cases with localized mass: These masses may be of most any size and composed almost entirely of pus or in large part of thickened omentum, coils of intestine and inflammatory exudate. They indicate that nature is gaining the upper hand of the infection and may effectively control it, or may require the aid of drainage, before recovery can take place. The mere presence of a mass of ordinary size, with one exception, is in no way an indication for immediate operation. If a small lump is felt early in the attack where it would seem improbable that the appendix would become gangrenous and perforate, produce a local peritonitis, and then form a mass in such time, we may expect it to be composed principally of omentum protecting the diseased organ, and should be able to remove it without contaminating the peritoneum to a dangerous extent. Many of these masses even though they contain a small amount of pus, will disappear if given a chance with conservative treatment, probably half of them will be taken care of by nature. Vaughn considers half a conservative estimate.

It has been my practice for several years, to treat these cases conservatively so long as they are improving, but when I see the mass getting larger or failing to subside, or the temperature and pulse start rising with the patient losing ground, the case is subjected to operation. In the operation, the prime indication is to drain the abscess with the least possible peritoneal contamination, if it is so located that it can be drained without opening the peritoneal cavity, this is the ideal method, next to this, is the occasional case which can be drained extra-peritoneally, by first opening the abdomen then locating the mass and directing the opening from important structures, inserting the drain and closing the abdomen, where this cannot be done it is drained transperitoneally in the usual manner. Such cases have usually passed their tendency to ileus but if there still appears to be danger from it, an enterostomy should be done.

Cases with diffuse spreading peritonitis: These cases have been the backbone of contention in appendiceal surgery for years. But I am thoroughly convinced in my own mind at least, that the violently acute cases will do better, when started on a conservative line of treatment as initiated by A. J. Ochsner, and gradually improved and extended by other workers. Giving them such amounts of morphine as necessary to keep them comfortable and quiet, applying heat to the abdomen, keeping their stomachs empty, using the duodenal tube for drainage and decompression when necessary, looking after their water and chemical balance, using such remedies as have been suggested to stimulate intestinal activity when considered advisable and the colon tube or occasionally a low enema to remove gas from the colon. But forbidding purgatives of every description. Adequate nourishment should be maintained by the use of glucose solution. Blood transfusions are frequently very useful in combating infection and maintaining the patient's resistance. This is especially true in the cases of overwhelming infection.

These cases are treated in this manner so long as they improve or until they recover entirely, which many of them do, without so much as the formation of a palpable mass. But if after the infection has "cooled down," it is found that the peritoneal cavity contains pus which should be evacuated, the abdomen is opened and drained, or if a localized mass forms, it is treated in the manner already described.

I am unable to understand the wisdom of subjecting an extremely ill patient with a raging peritonitis to an abdomenal operation, regardless of how skillfully it may be done in order to merely remove an appendix which has already done its damage, and insert a drain into a peritoneal cavity which has but little to drain and refuses to give up most of that. For when the abdomen is opened there is a decrease of intra-abdominal pressure followed by vascular congestion resulting in an upset of the circulatory balance, the defensive resistance is broken and the infection "runs wild." Deaver, struck the keynote, when he called it, "forbidding peritonitis."

The use of an enterostomy would enable us to operate these cases with less chance of disaster, not, that it could in any manner prevent the above mentioned changes taking place, but by enhancing intestinal drainage it would give the patient a better chance to survive them and at the same time would be a step in the direction of relief.

The practice of treating these cases conservatively until such a time as they appear able to withstand an operation, then operating is far superior to doing it while they are in the midst of a fulminating process. But I submit the question, why operate at any time in the presence of continued improvement? I can see no valid reason for interrupting a patient's progress by an operation while recovery is plainly taking place without it. Nothing more could be expected from any treatment and the appendix can be removed at a more opportune time.

Operating on the basis of time elapsed, was a step in the development of treatment based upon pathology and pathological physiology, and a history of the duration of the illness is still very valuable within the limits of probabilities as an aid in determining the extent of pathology. But the use of a clock or calendar to dictate the time of operation, is nothing more than a makeshift to indicate the therapeutic requirements of a changing pathology, and in the light of our present knowledge should be replaced by such an understanding of the disease as will indicate whether an operation is necessary, and if so, when it should be done.

In any case where it has been necessary to leave the appendix, it should be removed after the peritoneal infection has subsided, for contrary to a frequently expressed opinion, it is destroyed by perforation in only a small per cent of cases.

### SUMMARY AND COMMENT.

1. Our death rate from perforative appendicitis is too high. It is not in keeping with our background of knowledge and experience, and is out of proportion with our results in other surgical fields.

2. Death in the vast majority of cases is not primarily due to absorption of toxins from the peritonitis, but is the result of adynamic ileus, which in turn is secondary to the peritoneal infection and which actually causes death by dehydration and intestinal toxemia. The peritonitis is only a link in the pathological chain between perforation and the actual cause of death.

3. The treatment of perforative appendicitis should be based upon the pathology and pathological physiology, and the therapeutic

measures employed must be such as will meet the demands occasioned by the pathological processes of the particular case in hand. There can be no routine which will fulfill the requirements of all cases. Every one furnishes its own problems.

4. Not every case demands operation but taking them by and large the majority will require it at one time or another during the course of the attack, and if the anticipated benefit outweighs the probable ill effect of the operation, it should be done, not because tradition has had a tendency to make the name appendicitis an indication for operation, but it should be done for the sole purpose of meeting certain definite surgical indications, and the time when it should be done is of extreme importance.

5. The integrity of the gastro-intestinal tract must be maintained.

6. A properly executed enterostomy is a very simple and safe procedure and its judicious use will save many lives that would otherwise be lost, it also adds a great deal to the post-operative comfort of the patient.

.7 The water and chemical balance must be maintained and the actual physiological demands must be the index by which the treatment is governed. A haphazard method of ordering so much of this, that or the other, will fail to produce the results to which we are entitled.

8. It is fully realized that no set rule is applicable to every case and exceptions will occasionally occur, but a thorough understanding of the disease and the fundamental principles of treatment with an ordinary discriminating surgical judgment, should enable us to manage these cases from a rational viewpoint.

9. Assuming, that comparative pathological processes regardless of the type of infection which has engendered them, will present approximately the same therapeutic problems, the bacteriology of the disease has not been considered. Neither, have the various biologic remedies which from time to time have been recommended and which may in some cases be of benefit. But the measures which have been suggested, are in line with what the writer considers to be both sound in theory and effective in practice, and when used with due regard to definite therapeutic indications, will materially reduce the death rate of appendicitis.

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**Postoperative Reaction in Hyperthyroidism.**— The older conception that the postoperative reaction in thyrotoxic patients was caused by the introduction of unusually large amounts of thyrotoxic products into the circulation found support in the fact that the pulse and the basal metabolic rate were increased.

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## ANNUAL ORATION

# A CONSIDERATION OF FOUR ERAS IN MEDICINE AS A BASIS FOR A PROPHECY*

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The idea which runs through this sketch was conceived, I think, when some years ago I visited the imposing old fortress Chateau de Amboise where sleeps Leonardo da Vinci. It seemed to me on a soft summer afternoon to dominate the romantic Loire valley of France just as his genius did medicine in the making nearly five hundred years ago. He who might with justice be termed the father of modern medicine was laid to rest in the castle's chapel of St. Hubert in 1519 after having been brought to France by Francis I. with the idea of establishing the formal type of Italian garden in this, to him, new land.

The story of the healing art had begun, of course, with the advent of mankind on earth about a million years ago, as the archeologists tell us. The *art* rather than the *science* of medicine had developed to a very considerable degree up to about the time of the Christian era, but a very few centuries later the world in the Dark Ages had forgot the lore of Greece and Rome until that cultural awakening, called the Renaissance, came about the year 1500. It marked the decline of the one supreme influence in the Dark and Middle Ages, that of the Church, says Hyma ("A Short History of Europe"), because men no longer dwelt on eternal life alone; the physical considerations of every sort began to crowd out the monopoly of the soul.

The invention of movable type had unlocked the door of learning some fifty years earlier; the world stage was set for an event of unexampled importance when in 1489, three years before his countryman discovered this western world of ours, Leonardo da Vinci (Rachel Annand Taylor, "Leonardo the Florentine") began a book "concerning the human figure," by which accomplishment an inspired artist, author of The Last Supper and of Mona Lisa, became the father of human anatomy as we know it today and thereby stimulated more than any other one individual the study of that science which was fundamental to the first era of modern medicine. (The development of history itself (Bourne, "Medieval and Modern History''; Gooch, ''History of Modern Europe'') as a science had begun with Valla and v. Hutten only just before Leonardo made his first anatomical drawings. How fortunate for our purpose this is since no achievement of ancient medicine comes down to us clothed with comparable authority. One realizes what a momentous period of the world's history this was when he learns that da Vinci began his work for medicine but six years after the birth of Martin Luther, an event which led to the opening up of a spiritual new world so soon after Columbus had done the same for a physical hemisphere. Calvin, too, was born just across the Rhine from Luther twenty-six years later; what this pioneer did to liberalize and enlighten the world of his time is worthy of comparison with Luther's own accomplishment.

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May I justify, just here, this study of medical progress in epochs by reminding the reader that the isolated episodes of history are important, many of them in themselves, as part of one's cultured equipment, but it is only by a study of them as integral parts of the whole pattern that lines of progress can be discerned and interpreted with any degree of safety as predictions of the trend in times to come. It is frankly admitted that one indulges his own individual impression when he so groups the events of centuries in medical history as to prove that its development has been attained in distinct epochs.

The writer, too, looks at medicine through the eyes of a specialist who has been denied the satisfaction of the broadest field, which is unfortunate in a way, still the developments which seem to have moulded any one specialty alone may perhaps quite well be taken as an index of what has been accomplished in the world field during any given period.

### ERA OF ANATOMY

The epoch which shall be called that of anatomy in modern medicine came first as a matter of course since a study of structure (Era No. 1) as such is in the very nature of things fundamental to any consideration of disintegration (Era No. 2) to say nothing of the study of function (Era No. 3) which in this connection came as might be expected at a much later period. The science of anatomy came into being when Leonardo, born in 1452, called by historians the ''divine'' Florentine, the first artist and architect of his time though not a physician, became in reality a skilled anatomist for it was his drawings which later undoubtedly proved the chief source of the Belgian physician Vesalius' inspiration. Vesalius, excelling in anatomy itself, was in contrast to da Vinci not at all an artist in his own right, but his was the inestimable advantage of having Titian's pupil, Calcar, at his disposal, so he dissected in his matchless way and Calcar, equally gifted, sketched his work whereas the ''divine'' Florentine had carried out his own dissections and from them made drawings which have never been equalled in quality. Vesalius is generally acknowledged by medical historians to have been the most distinguished anatomist who ever lived, Bass calling the era of his activity ''the Golden Age of Anatomy'' though this was almost equally true during the time that his influence stimulated the genius of his pupil Fallopius while Silvius, his teacher, graced the same golden age.

Vesalius did more through his actual dissecting and teaching than did any other to found the study of anatomy as we know it today. His timely publication of the ''Fabrica'' occurred in 1543. It was the application of the principles of the ''Fabrica'' which are thought by many to have made Pare, a contemporary of Vesalius, the outstanding surgeon of the early Renaissance, an influence which did not end until Pare published his ''Gunshot Wounds'' in 1545 with which event a new age may be said to have opened up for surgery; it will intrigue the reader to be reminded that Pare was working during the Elizabethan age in England which produced Shakespeare in literature and Bacon in science, part of the world uplift.

Paracelsus, a German leader of this period, did more perhaps than any other of that nation's immortal contributors to science toward establishing an interdependence of medicine and surgery. German army surgeons, too, were noteworthy contributors early in 1500 to this renaissance in surgery by the production of books and pictures, while medical students from beyond the Alps flocked to Bologna from the very first to study anatomy especially because of the fact that Italy was the first country to permit the free practice of dissection. Dissections had become exceedingly rare by 1600 north of the Alps, one body or less a year being allowed to an institution; in consequence, anatomy almost ceased to progress from Vesalius to the Hunters, that is, for at least two hundred years.

Teaching of anatomy as a science may be said to have begun with the establishment of anatomical theatres at Paris and Montpellier in 1551, those at Basel, Edinburgh, Berlin, Vienna and Frankfort having come in this order at later periods, the last named not having been until two hundred and seventeen years later. In 1561 Fallopius published his ''Observationes Anatomicas,'' this being the earliest of the text book on anatomy, to be followed at a much later period by Winslow's complete work in 1732, Alexander Monro's "Handbook of Comparative Anatomy" in 1744, as well as the following: John Bell's "Anatomy of the Human Body" in 1793, Cuvier's "Comparative Anatomy" published in 1800, Bichat's "Anatomie Descriptive" (5 volumes) published in 1801 and his "General Anatomy" in 1802, Wistar's "System of Anatomy" published from 1811 to 1814, Cloquet's "Atlas of Human Anatomy" (5 volumes) from 1821 to 1831, Velpeau's "Surgical Anatomy" in 1823, Godman's "Treatise on the Fascia" in 1824, and Morton's "American Fossil Remains" in 1834. All of three hundred and seventy-three years elapsed between the appearance of the first and the last one mentioned.

Epoch marking discoveries in anatomy seem to have begun with Eustachius' discovery of the abducens nerve and suprarenal glands in 1564. Shortly thereafter, in 1568, Constantino Varolio described the pons Varolii. Wirsung discovered the pancreatic duct in 1647, Highmore the maxillary sinus in 1651, Thomas Bartholin the intestinal lymphatics in 1652, Glisson the capsule of the liver in 1654, Malpighi, anastomosis between the capillaries in 1660, Stenson the duct of the parotid gland in 1661, Casper Bartholin the sublingual duct in 1680; while the peritoneum was described by James Douglas in 1730, the sphenopalatine ganglion by Meckel in 1748, John Hunter's treatise on the teeth was published in 1771, and the nervous system was fully described in 1811, this last named being the product of Sir Charles Bell.

To retrace our steps, a series of events of lasting importance so far as the study of anatomy was concerned had commenced in 1565 with the passage of a law by Queen Elizabeth which permitted the dissection of executed criminals, then with the founding of the Royal Society in 1662 interest in all branches of science (medicine too) increased rapidly. The marvels of this life had by now replaced contemplation of the life to come, as an intellectual pastime.

When John Hunter was born in 1728 a new age in medicine began as Virchow told us so frequently during the years I was with him. He was quoted in lectures by Virchow more often than was any other in the late 'nineties, but I never felt that I really valued him until I read Moynihan's "The Advance of Medicine." The epoch-marking anatomical drawings of Leonardo da Vinci which had originally aroused world wide interest in anatomy, as Garrison ("History of Medicine") thinks, had much to do with inspiring the life work of John Hunter when he rediscovered them some two hundred and fifty years later. It was about this time that Thomas Cadwalader began to teach anatomy in Philadelphia to be followed thirty years later by William Shippen, Jr., who was John Hunter's gifted American pupil. In 1770 William Hunter established that first famous school of anatomy in Great Windmill Street in London and soon thereafter a Chair of Anatomy was founded at the University of Dublin. The world of anatomy had to wait for the birth of these distinguished contributors to its progress until 1733 for Wolff, Scarpa came in 1747, Mascagni in 1752, and Soemerring in 1755. There must have been very few full-time anatomists in those days; it is certain that both surgery and anatomy were taught together by the Monros, the Hunters, and the Bells, as was true indeed in the earlier days here at home; my distinguished trainer, Bernays, though an especially gifted operator was Professor of Anatomy at the medical school, as was no doubt generally the case even at that relatively late date.

Cultural developments in medicine, anatomy largely, led to the inevitable separation of the barbers and the surgeons during the active years of the Hunters and their contemporaries. Throughout the Dark Ages, 500 to 1000 A. D., cultural progress of all sorts had been at a standstill, the Church having had a monopoly on what little learning there was, as has been noted; it was during this time that the Pope demoted the surgeons; legal restrictions were thrown about the practice of their art and they were severely punished for a surgical failure or death of a patient. The Church's aversion to the shedding of blood probably lies in the background of the priest's unwillingness to "touch the body," which resulted in surgery and medicine being torn asunder after having been companions up to Medieval times, 1000 to 1500 A. D., hence it is easily explained that barbers and other handworkers had the performance of mechanical surgical maneuvers fall to their lot. A criterion of their judgment is apparent when one reads that in 1700 military surgeons (barbers) bled soldiers exhausted by long marches to take away fatigue. Should one wonder then at the fact that John Wesley, founder of Methodism, was healing by prayer from about 1750 onward? Or think of Christian Science as of recent origin? According to Bass, so-called surgeons were never so despised in Holland and Italy as in the rest of the European world, traveling as they did with vaudeville shows and working much as did our own medicine faker of yesterday selling his wares from a wagon.

It was not until 1743 that surgery can be said to have attained respectability in France, that is, up to the moment when the surgeons were separated from the barbers. It was still two years later that the same thing took place in England, but not until 1783 did Austria see fit to divide the followers of this trade and that profession, while it was yet two years after this period that the surgeons and the barbers were divorced in Germany, a department of the Charite being established in which to train them.

The barber who became an operator by virtue of the circumstance that he was the most skilled available mechanic later on developed in many instances into the most distinguished surgeon of his time. Still surgery was apparently not practiced as a specialty until long after the year 1700 and specialism within this field came even considerably later. Baas ("History of Medicine") says that until the advent of hygiene, preventive medicine, and camp sanitation frequent wars created mass operative experience for surgeons alone, hence the development of this branch outstripped internal medicine in consequence; epidemics did something in the same way for the latter, however.

The developments in anatomy, as was inevitable, inspired the men of imagination everywhere to a practical application on the living of what was obviously fundamental, with the result that surgery developed rapidly (from about 1771) to 1824 with the birth in France of Dupuytren in 1777, Delpach in 1777, Roux in 1780, Lisfranc in 1790, Cruveilhier in 1791, Velpeau in 1795, Malgaigne in 1806 Nelaton in 1807, and Broca in 1824. America produced McDowell in 1771, Warren in 1778, Mott in 1785, and Sims in 1813. England gave us Bell in 1774 and Brodie in 1783. Germany produced v. Graefe in 1787, Deiffenbach in 1794, v. Langenbeck in 1810, and Semon in 1824, who later carried the torch in that land, as Pirogoff, born in 1810, did in Russia. Three at least of those who contributed greatly to the surgery of this period were born in our own southern states, McDowell in Kentucky, Sims in South Carolina, and Crawford W. Long in 1815 in Georgia. The first of these three won undying fame when in December, 1809, in the not distant town of Danville, he did the first successful ovariotomy in the history of the world and this, too, before the time of anesthesia or asepsis.

While distinguished surgeons were multiplying just before the year 1800 an outstanding accomplishment was that of Jenner when he did his first successful vaccination in 1796. The high rate of medical progress at the same time was evinced by several discoveries in the electrical field which were to become significant in medicine later on; among them were the finding of animal electricity by Galvani in 1792 and the invention of Volta's pile in 1799 although earlier use of electricity had been made by our own Benjamin Franklin in the empirical treatment of disease.

### Era of Chemistry

The eras of Anatomy, Pathology and Physiology are mutually interdependent and one flows, chronologically at least, into its successor quite naturally, hence they are logically at least, it seems to me, designated as I., II., and III. which prevents IV. being found in this scheme of events where it might otherwise be expected.

Anesthesia was invented to meet an obvious need as the number of surgeons and the amount of surgery increased at the turn of the year 1800, approximately, when it was realized that advances in the art of surgery could go no further without the abolition of operative pain. Then resourceful minds rose to the occasion once more as they have always done when mankind has been faced by a compelling need. Thus the timing of an era in surgery becomes obvious; it was founded on a basis of chemistry and overlaps our first and second in its duration. Chemistry had developed out of alchemy in the sixteen hundreds; its crowning triumph was seen one hundred and fifty years later in the production of anesthetics, and of the first antiseptic drug commonly employed, carbolic acid. In 1800 Davy discovered that nitrous oxid, which had been described by Priestly twenty-eight years before, had anesthetic properties. This principle, which more than any other in all the world's progress has worked for the physical comfort of mankind, came, "with the irony of fate," just as the Napoleonic era opened, ushering in its unprecedented orgy of human torture along with its martial glory which latter has appealed rather to the historian. Leibig and Guthrie discovered the drug chloroform, while in 1834 Dumas was the first to really purify chloroform as we know it now and to give it its present name. In 1842 Long, to the everlasting glory of the South, first made known to the world that ether had anesthetic properties; then four years later Warren of Boston, began his routine employment of it as an anesthesia and by his exploitation of it probably did more than any other to introduce it to the medical profession. Chloroform was first used as an anesthetic by Simpson of Edinburgh in 1847. It will thus be seen that the surgery done prior to the 'forties differed essentially in one respect at least from that attempted in the 'fifties and thereafter.

Reference has been made to the fact that war has always furnished the training ground for the surgeon. One can imagine then the anticipations of our own army medical corps when, so soon after these pioneer experiments with general anesthesia, the Mexican war came in 1845. Porter, in his painstaking detailed notes of service, reports use of ether for a leg amputation in September, 1847, mentioning its use several times earlier though he was undecided as to its dangers. Obviously, the anesthetic of war choice would be the one which had been developed nearest to the field of military operations, hence it becomes significant that the next war in point of time and the first one in which English forces became engaged after Simpson's notable contribution to this subject was the Crimean war (1854) in which quite naturally chloroform was freely used and approved in all divisions but one of the British forces, only one death being reported (Guthrie). Macleod, after experience in the same campaign, says its benefits in military outweigh those in civil life; the French allies used it too in this campaign, but less frequently, no doubt because they had had no particular interest in its development. (The Crimean war means to us today little more than Florence Nightingale (1823-1910) and the scientific training of nurses, an idea which had originated with her teacher, Fliedner, when she was but a girl of ten though it remained for her to give it full development.)

### Era of Pathology

The pursuit of operative surgery based on the study of anatomy almost exclusively carried the surgeons of their time surprisingly far, still it was inevitable that the very limitations thus imposed should drive them to a study of morbid anatomy as the most likely means of enlarging their field of usefulness because normal structure must ultimately become greatly altered if life be continued long enough, hence we see the second epoch ensuing quite as a matter of course. This era of morbid anatomy and pathology as fundamental to surgery may be said really to have commenced, I believe, about 1838 when Schleiden first described plant cells although Bass writes that Robert Hooke in England had known of their existence one hundred and seventy-one years earlier. One year after Schleiden, Schwann (1839) published a treatise on the cell theory connected with his study of animal tissue; then Virchow's application of the work done by the two men just mentioned and the publication of his "Cellular Pathology," although they did not come until 1858, laid the foundation on which the surgery of this second era was really erected. Virchow's students, the writer among them, got the impression that Morgagni more than most other earlier students of pathology had inspired this great savant to his surpassing accomplishment. It was my extreme good fortune to spend four semesters with that incomparable genius of the last century; the master was seventy-four years of age when I first knew him but apparently as fresh and vigorous as he had ever been. Many will be surprised to learn in this connection that in 1790 the poet Goethe, was one of the earliest authors to write on plant morphology and was thus the forerunner of E. Darwin whose work on evolution startled the world four years later. The discovery of the microscope was, of course, fundamental to the work of Schleiden, Schwann and Virchow. Many men, Galileo (it will be remembered that Galileo, Kepler and Copernicus gave us our knowledge of the solar system which Newton proved by the discovery of gravitation) included, had worked upon this mechanical contrivance from 1590 to the time of Kircher who finally made it easily usable, in which connection must be mentioned the early histological studies of Malpigii as fundamental to the cell theory.

Virchow was still a medical student when Gross in the precellular era wrote the first exhaustive treatise on pathological anatomy in the English language, then Henle's "Handbook of Rational Pathology" followed in the period from 1846 to 1853. Here was a real genius; he was a pupil of Johannes Mueller and excepting Virchow the most versatile man and author of the group who had sat at the feet of this distinguished teacher. About ten years later Paget's special work on surgical pathology appeared, the first of its kind, and the literature which was to underlie this phase of surgery was then well established.

Just eighty-five years ago there was produced the most valuable clinical, pathological contribution of its time, if not of all time, that of Semelweis in which he concluded that puerperal fever was infectious and preventable, antedating scientific proof of this fact at the hands of Pasteur and Lister many years later. He awakened the world to a need less evident perhaps but no less vital than that of anesthesia, but it was not until eight years more that Pasteur began the epoch-marking studies in fermentation on which later were based the conception of antisepsis and still later asepsis, both of them fundamental to the surgery of today. It was still nine further years before Lister, following the suggestion derived from the work of Pasteur, first used carbolic acid (which had been discovered by Rungi in 1834) as an antiseptic; his success was such that older surgery became obsolete at a single stroke. I shall never forget how Sir Watson Cheyne held a little group of us breathless one rainy morning in 1910 at King's College Hospital by his recital of that pioneer operation done in 1865 under antiseptic precautions. His description too, in lighter vein, of accompanying Lord Lister on a moment's notice from Glasgow to London for permanent residence will never be forgotten by those who heard him.

My impressive teacher, v. Bergmann, added another highly useful antiseptic twelve years after the introduction of carbolic acid, namely, bichloride of mercury; how well I remember as a small boy observing my own father when he dipped his instruments in a solution of carbolic acid and later on, his hands in one of bichloride of mercury. Thirteen more years had elapsed before Koch's "Wundinfectionskrankheiten" completed the foundation, which Pasteur had begun, of the knowledge of bacteriology so essential to the practice of surgery at the present time. It was not until 1886 that the picture was completed when v. Bergmann introduced steam sterilization of surgical materials and implements twenty-one years after Lister's immortal contribution and thus established for all time the practice of asepsis as the culmination of all that had been attempted by the use of antiseptics. (I attended many of the masterful v. Bergmann's clinics during his riper years; the one best remembered is that in which he celebrated his sixtieth birthday.)

With anesthesia and antisepsis firmly established as a background, surgery progressed by gigantic strides to the end that the years 1869 to 1882 witnessed the successful removal of the kidney by Semon, the rectum for cancer by v. Volkmann, the larynx by Billroth, the pylorus by this same pioneer, and the gall-bladder by Langenbuch—all of this achieved with asepsis yet to come. During these same years that early master of abdominal and pelvic surgery, Lawson Tate, was winning a hitherto unknown degree of success simply by preventing postoperative accumulations of fluid within the peritoneal cavity calculated to act as a nutrient medium for bacterial growth. This era in surgery was completed by a series of scientific discoveries no less important than those of a practical nature just catalogued; in 1871 Weigert was the first to stain bacteria, while in the three years that followed thereafter Pasteur identified the staphylococcus and streptococcus, Koch discovered the tubercle bacillus (although Rokitansky had demonstrated the tubercular nature of Pott's disease thirty years earlier), Klebs discovered the diphtheria bacillus and Robert Koch the organism which produces cholera. It was my good fortune to have seen Robert Koch on numerous occasions while a student in Berlin, but I never had the opportunity of an introduction to this distinguished pioneer in bacteriology. It is chiefly in consequence of the discoveries just mentioned that within the memory of the writer alone human life has been lengthened from a span of 43 to one of 59 years.

### Era of Physiology

Fifty years ago the surgery of the first two eras, more or less destructive in character, had reached its natural limitation when every one of the dispensable organs and members of the body had been removed. A study of morbid anatomy, as had been the case with normal anatomy some fifty years earlier could lead no further. Is it not then quite obvious that resourceful students should have turned to a study of function in an effort to extend the limits of operative therapy with a constructive purpose in mind? This third era of surgery based upon physiologic considerations, which had its beginning about fifty years ago, was in reality built upon the foundation which Harvey had laid when he discovered the circulation of the blood in 1616, at least this was the date of his first lecture on the circulation. It is of interest to note, as Adams ("European History") tells us, that Harvey and Galileo were almost contemporaries; another proof that the various sciences have progressed together, not to more than mention the internationality of science itself.

Here follows a list of eight contributions of a general physiologic nature but fundamental to surgery, the first at the hand of Kocher who announced the discovery of the symptoms which characterized thyropriva following the removal of too much goiter tissue though Parry had discovered the antithesis of this condition fully ninety-seven years earlier. In 1889 Crile published his first experiments on shock and thereby established a new standard for tissue respect and artistry in surgery. His work would have been impossible without Hale's blood pressure experiments of one hundred and six years earlier which were destined to serve as a basis for our today's estimate of a patient's reserve with which to meet surgical trauma. Determinations of blood pressure which appear so prominently in all such work as Crile did became an invaluable clinical procedure only with the appearance of the Rivi Rocci apparatus in 1896. It may be remarked in passing, that a knowledge of Magendie's work on anaphylaxis published as early as 1839 was absolutely essential to the success of what has just gone before. I chanced to be a student in Berlin just thirty-eight years ago when the wonders of the Roentgen-ray were demonstrated a few weeks after they had been discovered. It is a memory to be cherished when one realizes that this procedure has done more than any other single one to reveal the secrets of function to an ever increasing degree. In the same year Magnus Levy proved that basal metabolism is high in exophthalmic goiter (in passing one must not forget that Baron Liebig had published the first studies of basal metabolism fifty years prior to this event) but it was not until nine years later (1904) that the same investigator showed it to be low in myxedema. In 1903 Bier introduced artificial therapeutic hyperemia and became Professor at Berlin in consequence. Our own Harvey Cushing described dyspituitarism for the first time in 1911. Banting and his associates lifted diabetes out of the class of rapidly fatal diseases in 1920 by the introduction of insulin and thereby alone lengthened the tenure of human life.

Five contributions having a local significance, speaking from the anatomical point of view, were ushered in very near the opening of the era under discussion (1884) when Sir Frederick Treves published the first monograph on intestinal obstruction, while in the same year his fellow countryman, Sir Victor Horsley, charted the areas of the cerebral cortex which Broca had begun twenty-three years earlier. Sir Victor Horsley entertained members of the Society of Clinical Surgery while on a visit to England in 1910. The clinic he gave for us in that cradle of neuro-surgery, the Great Ormond Street Hospital, was an experience that will never be forgotten. In 1897 Payloff published his monograph on the work of the digestive glands which in no way dims the luster of Beaumont's contribution to this subject made in the United States as long ago as 1833. In 1909 Dr. Halsted transplanted the parathyroids and established the physiologic law that they grew only when a need for their function has been created. One of the most stimulating privileges of my entire medical career was my acquaintanceship with Dr. Halsted; it resulted in the interesting and profitable experience of two summer vacations with him in his North Carolina mountain retreat.

Genito-urinary surgeons, led by Rowntree and Geraghty, opened up one of the most brilliant chapters in this surgical epoch when they established kidney function as an indispensable prerequisite for successful operative treatment in their field. This refers to their clinical application of phenolsulphonephthalein which Remsen had discovered years before. Of course, earlier studies of kidney function had been made but the introduction of this simple, safe, trustworthy test did more than has any other one procedure to place an estimate of kidney function among the prerequisites of a complete clinical study. Evarts A. Graham and W. H. Cole, of my own university, made a distinguished contribution to surgery based upon physiologic considerations when they, with their co-workers, published the dye test for gall-bladder function which goes by their names.

The next five contributions which broadened the scope of surgery in this era are to be credited to the field of anesthesia, particularly that of a local nature. In 1885 Dr. Halsted made the first clinical experiment with cocaine injection and thereby laid the foundation for local anesthesia following by a few months the use of this drug in the conjunctiva by Koller at the Heidelberg (1884) Conference. He was followed later in the same year by James Leonard Corning who introduced spinal anesthesia with cocaine thus awakening the world to wholly new possibilities in the field of anesthesia; then your own Rudolph Matas of the South, published his work on spinal anesthesia in 1889 and gave a tremendous impetus to a method which has proven indispensable when properly indicated. It was not until 1894 that Schleich did his work on local infiltration with dilute cocaine solutions and really first made this method of wide clinical applicability; still three years later Cushing published his pioneer work on cocaine nerve block for regional anesthesia and was perhaps even then beginning to lean toward the field in which he has since won such signal distinction.

The next four physiologic contributions which shall be cited have to do with work which made clinical chest surgery possible. The first was Fell's positive pressure respiration in 1887; two years later it was introduced by Rudolph Matas into a field of practical chest surgery. It was still five years later that Sauerbruch introduced his pneumatic cabinet for surgery of the chest which failed to live up to the promise that had been made for it. At almost exactly the same time Brauer introduced insufflation of the bronchial tree to aid in the performance of thoracic surgery, a contribution of lasting value. It was not until 1909 that the Meltzer-Auer intratracheal anesthesia without respiratory movements was devised, a procedure which with its modifications has gone far to make chest surgery what it is today.

The four advances which will be catalogued next have to do with physiology which underlies the surgery of the vascular system. Murphy's publication in 1897 of his partially successful results attending end to end suture of blood vessels inspired Carrell to perfection in this field. Five years after the event just chronicled Carrell introduced his method of triangular anastomosis, thus perfecting the Murphy idea and making it possible of accomplishment clinically in the hands of any fairly capable operator. (Dr. Murphy will long be remembered as a gifted and impressive teacher by all who had an opportunity to visit his crowded clinics at Mercy Hospital.) It was in this year (1902) too that Carrell first succeeded in the transplantation of living tissues. It was not until 1908, however, that he successfully transplanted segments of blood vessels and also did the same thing with organs themselves. In the same year Rudolph Matas proposed aneurysmorrhaphy as opposed to the ligation of important arteries.

When I first visited the Mayo Clinic in 1900, during the transition period at the opening of this century early in the third epoch, W. J. and C. H. Mayo were turning their attention in the direction which surgery has taken since that time when they departed in their daily clinical lectures from "dead house" pathological anatomy as they called it and were guided instead by a consideration of what they termed "living" pathology, which was after all their groping in the direction of the physiology of today as it underlies our operative work.

It will be noted that modern medicine is indeed a venerable institution. Its discoveries which we employ today in our clinical practice have been almost evenly distributed over the epochs which I have outlined as dividing up the space of 444 years. We see anesthesia as the indirected outgrowth of the first, asepsis as the direct outgrowth of the second, and the evaluation of the patient's physical reserve as an outstanding accomplishment of the third; now standing on the threshold, it is to be hoped, of a future era no less productive than those that have gone before we mark time after having apparently got as far as we shall solely along the lines we have followed for the last half century. One must conclude in retrospect that the way has not been smooth for the physician, his own fault at times no doubt. Only one hundred years ago the abuse of the lancet (bleeding) and calomel stirred public attention no less than has the recent report on the high cost of medical care. It must be added, however, that dissection, autopsy, vivisection, vaccination, all avenues of approach to present standards of knowledge and treatment were blocked at times by the public point of view. Then, too, quackery, patent medicine, counter prescribing, and some form of faith healing are as old as modern medicine (Schyrock, "Public Relations of the Medical Profession"). For, as says Baas, "A considerable portion of mankind has more readily followed imposters and fools than the light of reason even when perfectly able in other respects (non-medical) to make use of the latter."

The time seems to have come when we must seek a new avenue of approach to medical progress for the future. Now that every cavity of the body is invaded almost with impunity with results obtained that are far beyond the dreams of the surgeons who founded the four epochs which we have just discussed. Up to this time we have dealt in our surgical treatment with systems or organs as such, something particularly true of the first and second epochs; in the third we did, as a matter of fact, consider effects on distant structures when disease in one part of the body was eradicated, but there has, it would seem been little or no systematic effort to interpret disease and treat its manifestations with the same degree of attention to the single coordinating mechanism as that accorded the individual structures. The whole subject of anesthesia, too, is so dependent upon the patient's temperamental makeup as well as upon the surgeon's power to influence the sufferer that this phase of the subject alone involves a most extensive discussion if the ultimate is to be accomplished in rendering the patient really fit for operation. Most important of all, we have failed to attempt an interpretation of nervous manifestations in many instances which might have prevented our operating at all if only we had given them due consideration.

Many of the clinical examples which follow will, I think, convince the reader that there is warrant for the assumption that a future era for surgery can be opened up, superimposed, of course, on all we have gained from a study of the first four by an adequate appreciation of the psychiatric aspect of medicine. My attention was first called to the value of this consideration for the surgeon by my friend, Dr. Sidney I. Schwab, during a series of informal discussions of phenobarbital basal anesthesia which was then developing. His thought will be most accurately stated by quoting verbatim a statement prepared by Schwab at my request.

The purpose of this inquiry is to attempt to revaluate from a special point of view the art and science of surgery. Its chief purpose is a consideration of the individual patient upon whom surgical procedures are to be carried out. This revaluation is directed toward a study of the individual in respect to his environment and other factors previous to, during and after the therapeutic procedure has been applied. The term psychiatric is used because it seems to be the only one that appears to cover the many and varied aspects of such an investigation. In a general way it means that the personality, conduct, and the behavior of the individual form the central point about which clusters this attempt to understand him, that is to say, what he does, how he acts, and how he feels in a given situation presents the problem for study.

Illness is regarded in this sense as an experience—a common experience of all human beings and as such is capable of the same kind of investigation that situations of any kind afford. It is the purpose of the authors of this inquiry to carry out a study of the individual in what might be called a surgical situation.

It is hoped that this study may throw light upon the many problems which naturally arise when a disease process so handicaps a person that he logically becomes the objective of a highly technical, mechanically, almost perfected therapeutic method. It is believed that if the surgical patient were better known, if his psychial and physical reactions were better understood, the application of surgical procedures could be more selectively applied and the chances for survival or return to previous states of environmental adjustment and capacity would be greatly increased. Reference is not made merely to the reduction of mortality, but rather to the reduction of invalidism and that deficit in energy, that conviction of reduced capacity which even a very successful operative procedure often leaves behind. It is hoped that such an inquiry may furnish data upon which to base a more exact opinion as to the type of personality that should not be operated upon as well as that which should.

The data of this investigation is to be obtained from a study of selected cases which have as a basis some of the facts which have been set down in this brief statement. The psychiatric and not the surgical aspects of the individual case will be stressed for the purpose of reaching some definite conclusions and suggestions in respect to the totality of the individual who is the subject of a surgical disease upon whom surgical procedures are the necessary therapeutic indications.

The foregoing statement was written as part of a presentation made at the Clinical Congress last Fall in St. Louis and expresses briefly just what is meant by a psychiatric approach to surgical problems. A few clinical examples follow, the first having to do with co-operation. The patient's confidence in the surgeon is of importance, particularly where self control or stability plays a leading role (toxic goiter). A particularly neat thyroidectomy incision scar on a comely member of the hospital receiving room staff has reassured many patients. They have been further steadied by evidences of extensive experience along this line on the part of our floor nurses and internes. The maximum effect is secured by assigning to the over-anxious patient a special nurse who herself has made an ideal postoperative recovery from the same malady; while no one can deny that the most fortunate goiter patient of them all is that one in a ward surrounded by others who are progressing postoperatively toward satisfactory health.

The following example proves beyond a doubt that the patient's cooperation is fundamental to the success of some types of surgery. An incisional hernia cannot be repaired with success upon a woman who has gained a large amount of weight since her former operation. We never hospitalize such an individual until she has lost at home something like fifty per cent of the newly gained weight. This can be accomplished only if she has the strength of mind to follow out rigid dietary and exercise regime. A double purpose is here subserved because this patient must keep down excess fat even after the repair, and of course this is not to be expected unless she has proven herself possessed of the self control to lose enough to make the repair possible. Absolute cooperation is based upon confidence which is inspired quite naturally by some surgeons though intensified in all thinking patients by a complete understanding of important circumstances, that is, by a painstaking examination.

Put the patient in your own place and ask yourself what emotional reaction is more soul-satisfying than that stimulated by a finished actor or a gifted musician; it may be regarded as a triumph of one person's ability to impress another with his superiority, call it individual magnetism, personality, or what you will, the physician who possesses it and employs it honestly, as he should, gains in this way alone the ultimate in co-operation without which his best efforts fall short of complete accomplishment. By this same token the value of a patient's mental attitude toward a famous clinic cannot be overestimated; he goes there impressed by the fact that marked success is a sure indication of a capable personnel. He is, as a matter of course, inclined to accept the advice of those in whom he already has confidence, hence it comes about quite naturally that he co-operates to the limit of his ability while undergoing treatment; it will be conceded finally that a patient's co-operation is essential to complete success in any case.

The value of studying the psychiatric rather than the assumed surgical situation becomes apparent to one who realizes the common experience among those who see many goiter patients that numerous young women apply for operation who present no more than a subjective sensation of tightness in the neck. These individuals belong in many instances in a psychiatric clinic rather than in one of a surgeon, quite naturally being as a rule congenitally defective psychoneurotic individuals of one sort or another with an exceedingly low fatigue threshold. We find it necessary, of course, to refuse them operation and to plan in each case for an individual rehabilitation regime, although I am forced to state that they come to us, now and then, because a thyroidectomy has been advised.

The field of practical anesthesia is the one, above all the others it may be, in which the immediate returns from a psychiatric approach are most readily apparent. In the first place, preanesthetic impressions are of great value to the patient who is to be subjected either to local or to general anesthesia. We try to have her go to the operating room in the full knowledge that we cannot operate on an unmanageable patient, but will return her to bed, if she is intractable at any time then bring her back later on and operate when her self control is improved. Sometimes if she proves unruly the gas is removed long enough for a repetition of this statement although this is not often necessary because the patient who receives her injection or her inhalation with a mind made up that no temperamental display will be tolerated usually co-operates fully, if one may so use the term, even though seemingly unconscious. In other words, the patient's character "comes through" any type of anesthesia.

Local anesthesia, which has so long intrigued and at times plagued surgeons, no longer presents a difficult psychiatric problem in our service since we have developed a technique that warrants the conclusion that "local anesthesia" may in a given instance be regarded as faulty and inadequate if next day the patient can recollect the form in which it was employed. Anesthesia is never discussed preoperatively. The patient is drugged and nitrous oxid or ethylene may, at times if required, dull every needle prick.

It is particularly important that the subject of a spinal anesthesia be not informed as to the details of administrating the drug. We dope her so heavily that she will scarcely realize what is done in the operating room and then later go no further by way of explanation than to inform her that a type of local or regional anesthesia has been employed. This sort of management is suggested by the fact that now and then a spinal anesthesia patient imagines paranesthesias or other disturbances amounting even to a fancied paraplegia, though the most detailed physical examination fails to reveal a subjective alteration of any sort. I am not denying the possibility of anatomical injury in rare instances.

An observer intent upon this phase of medicine is early impressed with the conviction that a patient's expressions when in seminarcosis reveal, in many instances, the true character of the individual as is done in no other way; this applies to persons who indulge in the artificialities of life, cultivate repressions, and for whom culture, education, refinement etc. are assumed as veneer. Nothing of the above is likely to be experienced with people in whom the finer qualities are instinctive or are a matter of inheritance.

The man who belongs, as I do, to a family which has had one or more physicians in each of its last five generations cannot fail to take an unusual sort of interest in the art as well as in the science of medicine; so there may be value in his suggestion if after years of observation one concludes that perhaps we would do well today to cultivate once more the individual interest in each patient that satisfies her and to develop anew, if possible, the personality that won a practice when medicine was much more of an art than a science, long before this was thought of as fundamental to the psychiatric approach. The mere existence of the Commission to study the high cost of medical care is proof enough that some sort of a new deal is desired by a definite proportion of the community, on which topic Cushing ("Medicine at the Cross Roads") has so recently written.

We have followed the gallant company of physicians through the eras of Anatomy, Pathology, Physiology and Chemistry since the birth of modern medicine came, with a cultural world awakening after one thousand years of intellectual chaos, when Leonardo da Vinci made his first anatomical drawing nearly five hundred years ago. Europe's interest in this science was then first aroused by an appeal to the artistic soul of man; is it now wholly inconsistent, therefore, in this world relapsed into economic chaos to urge an appeal to his intellect and to his temperament in making our proposed psychiatric approach to the problems which at times underlie his continued existence?

## CLINICAL HYPOTHYROIDISM*

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In the practice of medicine today no more important condition is encountered or so often unrecognized as such, as hypothyroidism. Many lectures have been given on this point, most of which have emphasized the theory that hypothyroidism without myxedema does not exist. In fact that was what I was taught as a medical student 15 years ago. Just why this teaching should persist now in face of all the experimental evidence to the contrary is hard to understand. I feel, however, the reason for this failure to recognize hypothyroidism lies in the fact that Ord over emphasized the symptoms of myxedema when he analyzed the condition first described by Sir William Gull. Henceforth Gull's disease became myxedema, with the general impression that there can be no really significant depression of thyroid function without a demonstrable myxedema.

In 1922 there appeared a monograph on the thyroid gland from the Mayo Clinic representing the studies of Boothby, Plummer and Wilson. They had attempted to differentiate every case by metabolic test. They found cases with subnormal metabolism, below what was then considered average normal, but on further study they decided the condition was not a primary hypothyroidism and in the end they could make no definite clear cut recommendation as to the diagnosis of hypothyroidism without a demonstrable myxedema. After studying this work diligently I attempted to get from my associate and teacher, Dr. John Phillips, a definite concrete answer which would be the direct result of his study and experience. Instead of answering my question directly he suggested that I study that point for ten years, then come back and tell him the answer: Whether or not the etiology of these complex conditions associated with low metabolism, but without myxedema is primary hypothyroidism.

It is not my purpose to give a large number of cases or to show graphically and mathematically the proof of each statement; but rather to give a few typical cases in order to bring out the physiology of the thyroid in our clinical studies. The first five years of this study was made at the Cleveland Clinic and the last five years in private practice with the added experience of a glanular study of all children in the special schools of Detroit and Cleveland. Therefore, this is a clinical study and in many instances, observations on the same individuals have been continuous over a period of ten years.

Congenital hypothyroidism. Our ancient physicians knew that cretinism is a congenital defect due, in some way, to goiter in the mother; but only in recent years have we understood the nature of this congenital defect. From our present knowledge, based on animal experimentation and clinical studies, we know that growth and development all through congenital life are dependent on maternal thyroid secretion. Experimentally, a complete thyroidectomy tends toward a cessation of menstrual cycle and hence precludes pregnancy. If pregnancy took place soon after, or just before total thyroidectomy the young would die and miscarry. A sub-total thyroidectomy producing a definite thyroid deficiency, which in the mother is demonstrated by hyperplasia of remaining thyroid, (goiter) may permit the pregnancy to continue to term, but the young are cretins. This same mother, if given sufficient iodine to regenerate her own thyroid, will next time produce normal offspring. From experimental data we can show that cretinism and cretin imbecility are the result of a severe and persistent maternal thyroid deficiency. And from experimental work plus our clinical studies we feel that mongolian idiocy, cretinism, congenital goiter and congenital hypothyroidism, (not cretinism) are all resultants from the same maternal thyroid deficiency, differing only in the time of pregnancy, the severity and duration. For instance, mongolian idiocy is the result of a severe hypothyroidism very early in congenital life, 6th to 8th week, with its stultifying effect on the brain stem which is at a most important stage of formative development at this time. The classical picture of severe cretinism is caused by the same severe hypothyroidism at about the 12th to 15th week and at this time the circulatory system is greatly affected; frequently the heart is not completely developed and the whole capillary bed remains in an early foetal stage. This lack of development of the capillaries, which can best be seen microscopically in the nail grooves of children, is our best index to a defective circulatory system throughout the entire body. This has been studied extensively by W. Jaensch and W. Wittneben at the Institute of Marburg. In recent years Dr. Eggenberger of Hirsau has used this point as an absolute diagnostic measure for congenital hypothyroidism, and further, Dr. Werner Eisenberg, psychologist working with Jaensch, states that a child's teachability runs parallel with the development of his capillaries.

Frequently we found a severe hypoplasia of the first permanent molars with otherwise good enamel. This is interpreted as a permanent structural defect due to a marked metabolic disturbance at the time when the points of calcification of these teeth were being laid down, or about the 16th week. A less severe maternal hypothyroidism, and occurring in the last half of pregnancy, may result only in a congenital goiter. This is the condition that is most frequently seen in our endemic districts such as Ohio, Michigan and the mountainous sections of Kentucky.

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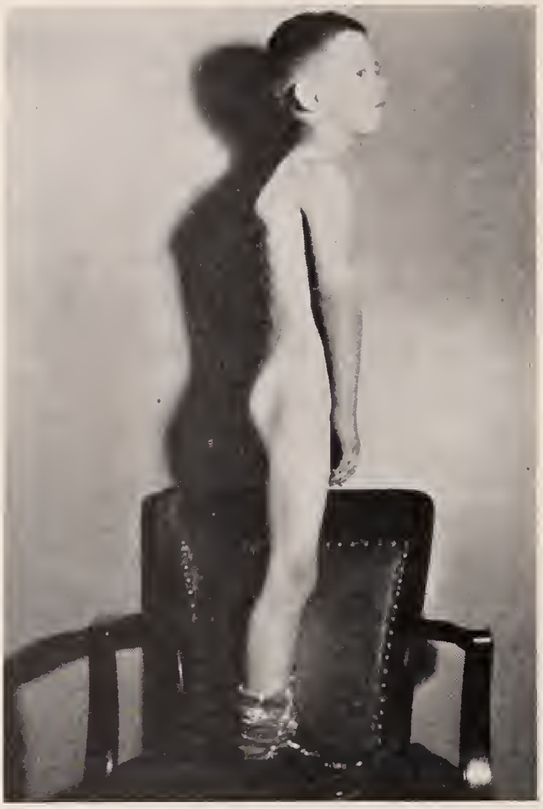
During a recent study of all the mentally retarded children in the schools of Detroit and Cleveland, we found the only instances where the mental defect was traceable to some glandular deficiency is in the case of congenital hypothyroidism. The details of this study were given in 1930, "Relation of endemic Goiter to Mental Deficiency." Approximately 10 per cent of all feeblemindedness in these two endemic goiter districts is due to congenital hypothyroidism. The most interesting fact is that comparatively few are cretins, or sufficiently clear cut that the condition is recognized in early childhood. In by far the majority of cases the only stigmata is a congenital goiter, frequently with persistent thyro glossal stalks, a marked structural defect of the first molars, and a cretinoid type of mental development. In addition to these, Dr. Eggenberger consistently finds structural defects of the capillaries of the nail grooves, but we did not carry out this diagnostic measure routinely. In children of adolescent age we found at least a marked delay in sexual development and many cases of infantilism. In addition to the physical findings we have the history of the maternal health during pregnancy; the birth and development during infancy, the age of walking, talking and teething. Also, they reach their maximum mental age comparatively early. The ratio of mental age to chronological age declines gradually with mental age stopping at about age eight. This mental growth curve is typical of cretinism, hence the term cretinoid type of mental development.

Infantile hypothyroidism is not infrequent. Here the congenital development is normal with the exception of the thyroid gland which fails to develop and function after birth. The congenital defects cited above are absent and the only definite complaint is marked retardation of growth and development of early childhood, with no environmental circumstances to explain the lack of growth. If the condition is not recognized and adequately treated before puberty they remain infantile. It is this class that improves so much on adequate therapy and since there are no structural defects they can be brought practically to normal.

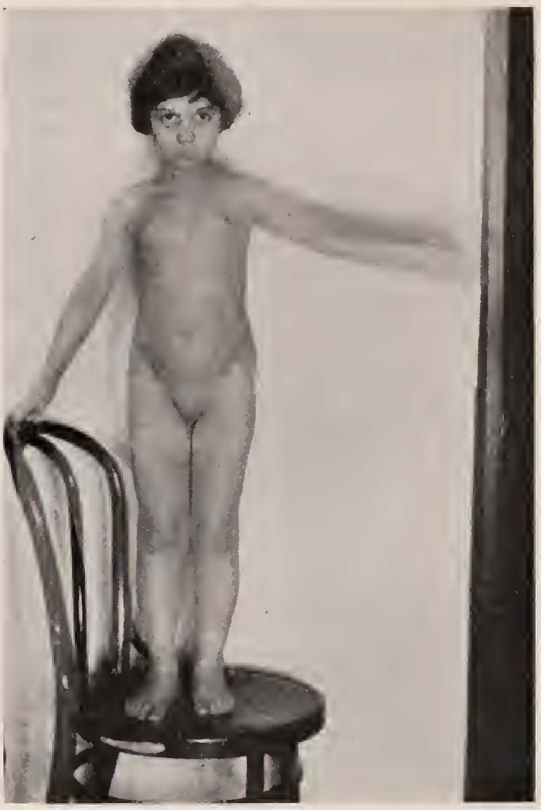
Hypothyroidism in adults may be either chronic, extending over many years, or come on rather abruptly. Either type may result from infection, malnutrition or exhaustion. A continuous low thyroid function without goiter is undoubtedly tied up with our hereditary factors; or, as described by others, a familiar type of hypothyroidism. I have seen three such families with history through three generations.

As an example of continuous low thyroid function I think first of a Cleveland family we have studied. The mother now 70 years of age has been distinctly myxedematous since age 60. Her two daughters have matured just like the mother, very late puberty, menopause by mid-thirty. Now one at 50 has suffered severe exhaustion and inadequacy for ten years, never able to regain or hold her strength. The other has been on thyroid for eight years. These two women are not cretins. They are well developed mentally, but almost infantile as far as sexual development is concerned. They have had repeated metabolic studies during the past 10 years and if thyroid therapy is stopped for a few weeks their basal rate falls to approximately 25 per cent below the average normal.

The acute hypothyroidism is a phase of this disease that frequently goes undiagnosed and untreated. Our goiter surgeons have recognized it and some practice its prevention by giving a large dose of thyroid extract immediately following thyroidectomy on a patient with high metabolism. In my experience I have found that a rather sudden drop in metabolism may have about the same devastating effect on the sympathetic nervous system, producing very similar nervous manifestations, as a sudden rise, such as is seen in acute exophthalmic goiter. I have seen quite a few such cases diagnosed as acute hyperthyroidism. The most outstanding case of this character which I have studied actually developed exophthalmos. The details of this case will be given with her photograph.

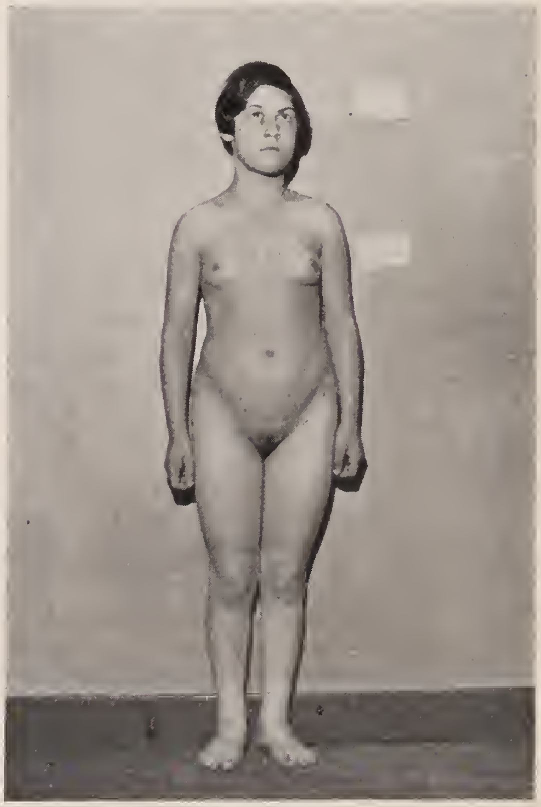


Mongolian Idiocy



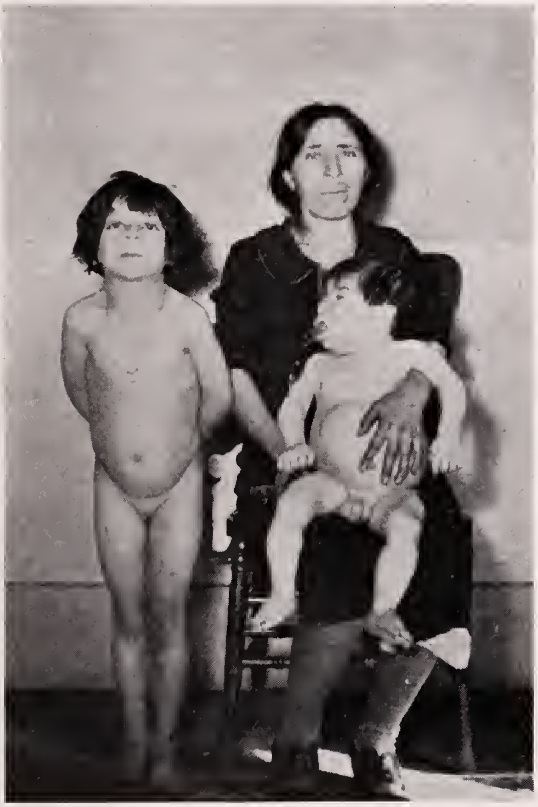
February 1931

This is the picture of a boy 6 years of age from a very intelligent home in Cleveland Heights and the history is accurate. Less than three years before the birth of the child the mother had a thyroidectomy for a severe exophthalmic goiter. According to the surgeon's notes he left just as little thyroid tissue as he dared and told the patient that she should not marry, or at least not bear children for five years. No studies were made following the thyroidectomy, but she felt quite normal and was married in approximately two years. Just six weeks after conception she developed rather suddenly a severe exhaustion and weakness associated with a nervous irritability not unlike that of exophthalmic goiter. The condition was at first diagnosed as recurrent hyperthyroidism and treated as such for four weeks before a consultant was called and a basal metabolic test requested. This was approximately minus 40 per cent and after a careful study thyroid extract was started and continued through the term. The result of this acute severe hypothyroidism early in pregnancy is a hopeless mongolian idiot.



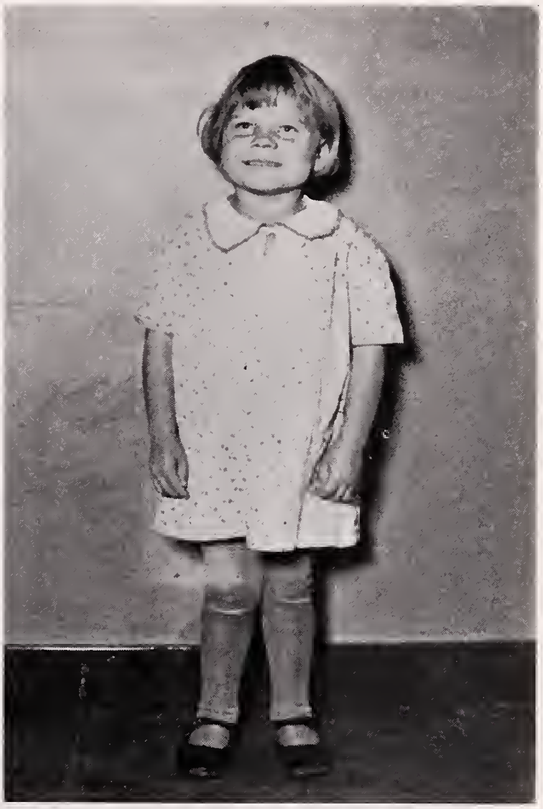
August 1933

This child was diagnosed as a cretin at birth and treated adequately to age 5 years by the dispensary in our Cleveland City hospital. At this age the parents stopped going to the dispensary and growth stopped. This photograph was taken in February, 1931, aged 14 1-2 years. with all the stigmata of cretinism and with no suggestion of pubertal change; physically and mentally a 5 year old. We started thyroid again and in two years she grew 7 inches and was going through the pubertal changes. In 2 1-2 years, or at age 17, she has completed the normal pubertal change; also a tremendous change in bodily growth and development, but mentally she is still 7 years of age and can go no further because of the structural defect of the capillaries of the cortex. Six months ago the dispensary physician stopped thyroid and within three months her menses stopped. When the second photograph was taken she had not menstruated for three months and her height was the same as six months previous. Her basal rate was minus 30 per cent. On adequate thyroid, growth and normal menstrual cycles have again been established.



(Girl) Congenital Hypothyroidism (Boy) Cretin

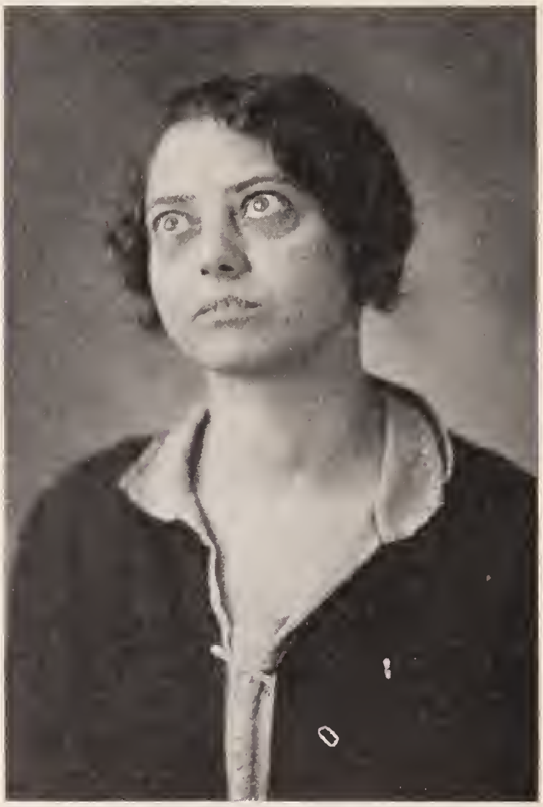
Congenital hypothyroidism without a clear cut picture of cretinism may be overlooked. While showing such stigmata as congenital goiter with persistent thyro glossal stalk, severe dental hypoplasia and cretinoid type of mental development, they may be quite normal in size and appearance. The little girl shown here, considering her heredity is quite normal in size and appearance; yet on detailed examination was diagnosed congenital hypothyroidism. On further study we found 6 children, the oldest 14 years and the youngest 6 years. Studying this family you could visualize the relative, but gradually increasing hypothyroidism showing up in the three younger children. A boy of 9 who is mentally and physically below normal with such stigmata as malnutrition, a falling I. Q., and a severe hyploplasia of his first molars, was diagnosed on examination in the school as congenital hypothyroidism. In the photograph is the sister, 7½ years of age, showing all the stigmata of hypothyroidism more distinctly than the boy of 9 years. During her examination I added the remark that she just missed being a cretin. When further study was made in the home we found the next child, one year younger, a hopeless cretin imbecile. The mother has a large fibrous goiter with every appearance of severe hypothyroidism, but no demonstrable myxedema.



Infantile Hypothyroidism

The condition described as infantile hypothyroidism is best illustrated in this little child. She was apparently normal at birth, nothing of importance in early childhood and only the usual diseases of childhood to age 8 years. The only complaint ever made was pertaining to her slow growth and development. On examination she still has her baby teeth; bony structure of her face is apparently normal, except lack of growth. The thyroid is not palpable. Her mentality is normal for her age. Her height and weight compares with that of a three year old, yet her parents are of average size. There was every evidence of low metabolism, texture of skin, slowness of speech and thought, her facial expression and a slight anemia. During this past year on adequate thyroid she has made an unusual growth and her teeth are almost normal for her age. Had she gone untreated through the years of puberty undoubtedly she would have remained infantile.

Acute hypothyroidism in adults is frequently seen following thyroidectomy or some destructive treatment as x-ray or radium. It is conceivable, however that in many individuals the thyroid is able to supply only enough thyroxin to keep the individual going at a minimal normal rate when all other factors are normal. Then with some added demand such as infection, pregnancy or menopause, there is a comparatively sudden fall in the metabolic rate causing symptoms such as fatigue, weakness or an unusual weariness, drowsiness and sleep. The woman shown here experienced the condition just described.


Acute Hypothyroidism in Adult

This young woman's nervous symptoms started suddenly in September, 1923, with an unusual fatigue, hysterical crying, nervousness and tachycardia. She saw the physician the following day and although the thyroid was not palpable a tentative diagnosis of hypothyroidism was made. They started giving lugois in small doss immediately. However, from the start she would be very nervous one minute and sound asleep the next. This unusual weariness and sudden demands for sleep continued, and in spite of poor appetite she gained 35 pounds in the first three months of this illness. Also, at this time, December, 1923, there was a slight but definite exophthalmos and because of this symptom a basal metabolic test was made. It was promptly ignored, however, because it was far below normal instead of high as anticipated. It was in January, 1924, that I first examined this case and by that time the condition was definitely one of severe hypothyroidism (basal rate below minus 30) and she improved on thyroid therapy. Briefly she soon got back to normal on thyroid and remained there as long as she took sufficient thyroid to maintain normal metabolism. About one and a half years later she wanted to get away from taking thyroid and seeing an opportunity for a little research I advised the same. Within one week she developed exactly the same nervous syndrome as at first. This time we know it was acute hypothyroidism. The arguments that arose over this girl's exophthalmos should be given here. The goiter surgeons insisted that it started out as an exophthalmic goiter, i. e. a hyperthyroidism, and the thyroid burned itself out. The clinical picture did not look like a hyperthyroidism and I argued that an acute drop in metabolism might stimulate the sympathetic nervous system in exactly the same way as an acute rise. Therefore. it would be possible to get exophthalmos in acute hypothyroidism the same as acute hyperthyroidism. Recent studies of the anterior pituitary have yielded a thyrothrophic hormone. With this hormone Marine was able to produce exophthalmos in thyroidectomized, as well as normal animals. From his animal experimentation Marine states that "Exophthalmos per se is not dependent upon thyroid function, either normal or abnormal."

Also, during 1923 I saw another young woman who was suffering from a severe hyperthyroidism with high metabolic rate and all the clinical symptoms that go with this disease. After careful study and preparation for surgical treatment, I advised thyroidectomy. After a thoughtful study of all factors the surgeon deliberately set out to remove as much thyroid tissue as he could and still leave a small amount of gland tissue to regenerate and in time function normally. For some unknown reason the remaining thyroid never regenerated, or at least never functioned. The recovery from the operation was uneventful and we thought that we had completely cured the case when she left the hospital one week later. During the second week at home, or third week post operative she suddenly developed an unusual nervousness and tachycardia. The clinical picture was interesting: The slight exophthalmos seen in the beginning was now exaggerated. There was an expression of great anxiety. The fine tremor previouly seen was now a coarse tremor or even a shaking of hands, and body. She was crying hysterically most of the time, but would fall into a deep sleep as if drugged. The pulse was rapid (120), but pulse pressure low, less than half normal so that the blood volume was even below normal. The patient said she was crying because of a dreadful sense of weariness, hence the deep sleep. I actually thought we were dealing with a recurrent hyperthyroidism and reported the basal test as soon as possible. This was found to be minus 38 or approximately to the myxedema level. She improved rapidly on thyroid and in three weeks apparently was normal. It soon became evident that she would have to continue the thyroid and now after 10 years still takes five grains daily. Twice during this period of observation she omitted the thyroid during her vacation period when every other factor seemed to be ideal, but each time developed an acute hypothyroidism with the same nervous manifestations. The nervous symptoms might be mistrusted, but each time the metabolic rate fell rapidly (16 to 20 days) to the myxedema level, or minus 40. She has repeatedly told me of instances when she had forgotten to take her thyroid and within 12 hours definitely recognized that same feeling of unusual fatigue or weariness.

Five such cases have been studied in detail from two to ten years. In each case we have permitted the patient to develop at least once a severe hypothyroidism. We have again held them in a state of mild, or relative low thyroid hoping to bring about a regeneration of any possible remaining thyroid cells. Only one of the five showed a tendency to develop myxedema. Possibly some of the others would have developed myxedema eventually, but the condition is so obvious that we must never permit any case to go on to that state.

The chronic type of hypothyroidism is practically always seen because of some condition secondary to low thyroid activity. The majority of my patients have come because of symptoms of hypogonadism. The chief complaint of the women is some abnormality of the menstrual cycle. You soon learn, however, of associated symptoms such as fatigue, lack of energy, or spells of drowsiness of which they are ashamed, and frequently nervousness. We have seen practically every type of amenorrhea and dysmenorrhea which was eventually proven to be secondary to a hypothyroidism and relieved by adequate thyroid therapy. Amenorrhea associated with obesity usually is not thyroid, but pituitary in origin. Approximately only one in ten of this class is of thyroid origin and will respond to thyroid extract. Rather it is the underdeveloped young woman with a history of retarded development during puberty and a gradual decline in her menstrual cycles. This obvious hypogonadism is, in by far the majority of cases a primary low thyroid function with a retarded sex development. It is so important that they be diagnosed in time, by age 16-17 and development brought up to their maximum normal. In the glandular study of special schools of Cleveland and Detroit we found over 200 cases; however, it was impossible to treat them because of uncontrollable circumstances. In my own work I have studied many such cases over sufficient time (1 to 5 years) to see further development and normal gonadal function.

Dysmenorrhea due to primary hypothyroidism may simulate any and every form of menstrual disorders. One of the most instructive cases we have studied is that of a woman 35 years of age who had been having increasing difficulty for five years. The menses would occur only two or three times each year, but each period would last from three to six weeks with at times a rather profuse flow. In August 1930 she was taken to Lakeside Hospital for curettage to stop the flowing which had been constant for nine weeks. The marked edema of both legs which had existed since puberty was diagnosed Milroy's disease because her mother and one sister had a similar, but less severe condition. Her next period began November 1930 and after three weeks another curettage was advised. At this time she came to me for diagnosis. On questioning we found the same retarded puberty mentioned above, menarche at 16 years; irregular, skipping almost half her periods, abnormally light flow and much pain. The edema of the legs began at puberty increasing gradually. For the past five years, or beginning age 30, menses were very irregular with profuse and prolonged flow and edema of legs were marked and constant. Other than the legs there was no suggestion of myxedema and her expression did not at all suggest a low basal rate. However, her basal rate was low (minus 34%) and on sufficient thyroid her symptoms all cleared up within three months. For the past 2½ years her menses have been perfectly normal and regular, every 28 days. The edema of the legs gradually decreased and by the end of the first year's treatment there was only a slight swelling after a day's standing and no swelling in the morning.

Until the prevention of goiter became a regular health measure, approximately one-third of the girls in our community developed a simple goiter during puberty. This thyroid hyperplasia always meant a relative hypo-function, or at least a struggle to maintain normal function. Is it any wonder that many deficiencies would be so severe that puberty would be retarded and the thyroid so damaged that we have a permanently low thyroid function?

As stated above, any type of hypogonadism in women may be due to a primary hypothyroidism. The chief complaint may be either abnormal menses, frigidity or sterility. We have studied many cases over a long period; establishing normal menses by thyroid therapy alone and again omitting it, only to get a return of symptoms. From this experience we feel that the hypogonad function is secondary to a thyroid deficiency. My results only corroborate the work of many other men making similar studies.

In the male, I have studied ten cases who complained only of impotence. In three of these the only definite finding was a low basal rate, from 20 to 30% below the average normal. All three were relieved of their difficulty by thyroid, but it is necessary to maintain a normal basal rate for at least six months before we get a return of gonadal function with relief of this symptom. However, in this condition other possible and even more probable etiological factors must be ruled out before even considering hypothyroidism.

The effects of low thyroid activity on the skin is well known. The skin becomes dry, scaly and in extreme cases there is a peculiar putty-like edema from which the term myxedema is derived. It is only reasonable to suppose that this condition would aggravate, if not cause, some of our chronic skin lesions. During this study I have had three such cases: Two were cases of palmar eczema, both treated by careful dermatologists for three to five years. We found a moderately low basal rate, approximately minus 20, but no symptoms of myxedema. On thyroid therapy alone the skin lesions cleared up entirely within three months.

The third is a woman of 30 years who has suffered from chronic eczema since adolescense. For the past ten years it has been very bad most of the time and she has been under the constant care of a dermatologist. She came to me two years ago for study, and at that time her skin was dry, thick and scaly, with a pasty edema very suggestive of myxedema. The chronic seborrheic dermatitis over shadowed everything. There was no marked subcutaneous edema and no increase in weight. The history was very suggestive of low thyroid function: (1) Menses very irregular and abnormal. (2) She wanted to sleep twice the average number of hours. Her basal rate was approximately at the myxedema level, minus 34. On thyroid alone her skin lesions rapidly cleared up, but it continued to improve for a year. By then she had a perfectly normal healthy, smooth, soft skin. Had this study stopped here I would have given too much credit to thyroid function. Last spring she went to New York City to visit and a few days later developed a severe dermatitis, yet taking thyroid to tolerance. On further study we found she has an allergy to all dairy products and her reaction to cheese is intense. While in New York she was visiting a friend who is fond of cheeses and our patient had eaten freely of many different kinds. The complete story is that the dairy products produce an acute allergic dermatitis and previously the low thyroid function kept it going as a chronic seborrheic dermatitis. By omitting dairy products from her diet and giving thyroid to tolerance she has a perfectly normal skin.

In these several cases I have tried to visualize the importance of normal thyroid function during the different stages of life. First there is the formative period of a few months when the very pattern of life is set. And whether you shall have normal intelligence or be a cretin imbecile depends upon your mother's thyroid. Growth and development from birth to adult life depends to a very great extent on normal thyroid function: A retarded and incomplete development at puberty lays the foundation for many of the menstrual abnormalities in young women: Premature menopause associated with fatigue and exhaustion is very suggestive of thyroid failure. The counterpart to this in the male is impotence, obesity and a loss in personality secondary to hypogonadism.

From the various conditions described it is obvious that no short and easy method of diagnosis exists. Nothing can take the place of a thorough physical examination. Chronic infections and organic diseases other than thyroid must be kept in mind. While the major function of the thyroid is to maintain a rate of oxidation above a certain level, and we now have fairly accurate means of measuring that rate, still there is always the question of individual variation. A low basal rate is more apt to be the true reading than a high one, because all errors tend to increase the reading or give you a rate higher than basal. As we have had to warn against every other laboratory procedure we must again say watch your basal testing. Repeat it if in doubt and study each case until you feel sure you have the basal rate. For instance, if clinically you have estimated the basal rate to be plus thirty, and a careful laboratory test shows minus thirty, go over your patient again for your clinical diagnosis is most probably wrong. And conversely, if your clinical estimation of the basal rate is minus twenty and the laboratory reports a basal rate of plus sixty, repeat the test until you find the leak. Three years ago I had just such a case. The technician checked the machine for leaks and finding none repeated the test with exactly the same results (plus 60). We repeated it the third time and I studied the machine and mouth connections for leaks and again the same result, plus 60. By this time I started studying the patient, first the lachrymal ducts, then the ears. One ear drum showed a large perforation and after making the external auditory canal of this ear air tight, we repeated the test. The reading on this test was minus twenty. You probably will never see such a source of error, but this case is given only to emphasize the need of caution, especially with readings higher than your clinical estimation.

Summarizing my experience during the past ten years, I have seen many cases of hypothyroidism, but few cases of myxedema. We now know that you can have a severe hypothyroid condition without myxedema just as you might have a severe chronic nephritis without dropsy. Lawrence and Rowe summarizing their cases of marked hypothyroidism find there is no appreciable difference in the basal rate of the group showing myxedema and those showing no edema. As suggested by these authors, it would be well to drop the term myxedema as synonymous with hypothyroidism since it seems to inhibit the early diagnosis of that condition. The differential diagnosis of a thyroid deficiency as being the underlying factor in any given condition, is not so difficult; the real difficulty lies in the failure of the physician to consider it as a possibility in any given condition.

The detail of therapy seems unnecessary. My only suggestion is to begin with a small dose and increase gradually to tolerance. It should be mentioned that thyroid extract is so standardized that an average sized man of 150 pounds with no thyroid function requires six grains (U. S. P.) thyroid extract daily to hold his basal rate at the average normal. And a child of 50 pounds, with no thyroid function, could tolerate a maximum dose of two grains daily; but he should be started on about one-fourth that amount, increasing gradually to tolerance in approximately two months. These are the theoretical averages, but you will find considerable variation. Dr. Lawrence studying this point advises that "there is no exact relation between the initial magnitude of depression of basal rate to the amount of thyroid extract to bring it to normal." I think, however, that this statement includes the extreme cases and is seen just often enough that we dare not reduce the treatment of thyroid deficiencies to the simple arithmetic that at first seems possible. And further, it will require several months treatment before we see normal physiology of the coordinating glands, such as the gonads, where normal function has been impossible because of thyroid deficiency.

From my study of thyroid conditions in children, especially, the study of our eight thousand mentally retarded children in the special schools of Detroit and Cleveland, I am impressed by the scope of our opportunities to prevent these conditions. If we can only visualize the importance of normal thyroid function through every pregnancy, we will prevent ten per cent of our feeble-mindedness. Our health department has cared for most of these in the prevention of goiter, but there will be many cases of unusual need and we must care for them. Also we will keep many children growing and developing normally who otherwise could not attain their maximum, either mentally or physically. And again if we can keep in mind the physiology of the thyroid gland throughout our every day's work, we will be able to at least consider the possibility of a thyroid deficiency. The actual proof of such a condition will not be difficult.

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**Tuberculous Primary Infection and Tuberculous Disease.**—Ustvedt's investigations indicate that the first tuberculous manifestation during school age as well as in infancy and during earlier adult age follows fairly closely after the primary infection.

## ORIGINAL ARTICLES

# THE RELATIONSHIP OF THE PUBLIC TO THE MEDICAL PROFESSION*

J. G. Sherrill, M. D.
Louisville.

The relationship between the public and the medical profession is exceedingly close. It must of necessity be most cordial. The contact between the patient and his physician is more intimate in some respects than that of the minister and his parishioner. In order to obtain relief promptly, safely and completely, the patient confides absolutely his life history, his habits, his errors and his follies to his medical adviser. He does this with the knowledge and complete confidence that the communication remains inviolate. It is a calamity when such relationship is broken.

Such close accord was the rule in former days, when the family practitioner was an intimate friend, and also the social, political and even religious adviser. It still holds true wherever the old-fashioned general practitioner is found. The relationship should be just as cordial between the patient and the specialist, but because of the short time of contact it is of brief duration and less intimate. Continuous contact naturally brings close association and strong friendships. Occasional consultations are less likely to bring the same results.

In the old days, the family doctor welcomed and asked for help when the patient became seriously ill and did not respond promptly to the treatment. The consultant came with the physician and together they studied the case and both remained in attendance until the crisis was passed. Too often, at present, when additional advice and assistance are desired, the regular attendant asks the surgeon or other specialist to see the patient and report his findings. The consultant gets an independent history and makes a personal examination which may solve the difficulty, but in many cases a joint study clears up certain obscure matters that each may overlook alone. If a patient is sufficiently sick to need a consultation, he should really have one. Both of those in attendance should be willing to give all the time necessary to clear up the symptoms and their cause.

The attendants and the patient should be in complete accord to obtain the best results. The family and the friends should also assume the proper attitude and show the proper confidence in the doctors. When such a rapprochment is established everything will go well, but when the relationship is strained the consultant should withdraw from the case. The physician should be given complete control over the care and treatment of a given case. "When denied jurisdiction he should not assume responsibility." He deserves the respect and support of the entire community and the love and esteem of his patrons.

The physician is on duty subject to calls any hour of the twenty-four. As a rule he responds promptly, regardless of the time, night or day, the character of the weather or his own personal comfort to the call of help; nor asks whether he will receive pecuniary reward. Three instances have come under my personal observation where physicians answering calls in inclement weather and at night after days of over-work, have been accidentally killed and become martyrs to their duty.

The idea seems prevalent that physicians are over-paid. Nothing is farther from the truth. Most of the pay received by physicians is in the appreciation, the esteem and the high regard of their patients and not in cash. They cannot be fully compensated for the nervous exhaustion, the physical tire, the risk to their health from exposure, the danger to life from infections and accidental contamination in surgical procedures. Every serious case makes an extreme demand upon the reserve energy and the vitality of the doctor in attendance. How then can he be compensated for his watchful care while the person is in extreme danger.

The same may be said of the competent, kind, gentle painstaking and sympathetic nurse.

Do the people at large really appreciate such care? If so, would there ever have been formed "The Committee for the Study of the Cost of Medical, Nursing and Hospital Care?"

There is no portion of our body politic which is more altruistic than medicine as a whole. It is the one group which throughout the centuries, has studied the cause and prevention of disease, knowing full well that each advance in knowledge meant a corresponding decrease in the financial return from their professional work. These studies were conducted, in most instances, without remuneration and were never capitalized by the physicians to their own personal advantage. The list is too long and too familiar to mention all those who have contributed to the advance of medical knowledge, the prevention of disease and the public health service.

The entire hospital situation in the United States has been markedly improved as the result of the formation at Washington in

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*Delivered before WLAP Under auspices of the Jefferson County Medical Society Auxiliary.

1913 of the American College of Surgeons by the leading surgeons of the country, on their own initiative and at their own expense. These gentlemen have raised professional standards and improved the hospital service to the highest degree with the result that every facility for the care and comfort of the sick is provided in every recognized hospital. An enormous outlay is expended to produce this result. In addition, the highest type of nursing care is given the patients and the best food is selected and supplied under the supervision of competent dietitians. The buildings are properly constructed, heated and ventilated. They are models of cleanliness. Can such service be supplied at a cost of about the price paid a hotel for room and meals, and show a profit? Most certainly not, and still the price charged is about the same as hotel rates. Bed, meals, nursing care and all forms of laboratory service are supplied at a minimum price. In order to meet the deficit in operating expenses hospitals must seek endowment by voluntary contribution to carry the load.

The commotion over the so-called cost of medical service in all its branches is not based on sound fact, but is the result of propaganda put out by certain uninformed social workers who think everyone should be a ward of the government. Some of the strongest advocates of state medicine are men who have acquired a fortune in business by paying the smallest possible wage to workers. They then attempt to absolve themselves by leaving large trust funds to study some means to lessen the proper return to men who bring health and comfort to the sick and dying. It can be stated without the fear of contradiction that for the service supplied, the cost of medical care is less than any other necessity. The duty of the people to support the medical, dental, nursing and hospital service is clear. The obligation is evident. Yet how sad is the failure to pay in full even the smallest of these expenses, as is seen day by day. The rule that a laborer is worthy of his hire apparently does not apply to the medical profession. How many of you, who listen in, are now in arrears to your doctor, your dentist, your nurse and your hospital? Those who supply such service should be paid fully, promptly and gratefully in order that they may keep up their studies for the benefit of the human race and future generations. Moreover, they do so much real charity, that they should not be asked to contribute to charity funds as are other members of the community who do nothing comparable to their charitable service.

# BACILLARY DYSENTERY, WITH REPORT OF CASE*

ROLAND L. MCCORMACK, M. D.

Louisville.

Although the etiological agent in this case is B. dysenteriae, the case falls in a group termed "alimentary toxicosis" which loose term simply denotes the primary site of disorder and the secondary manifestations.

This case is reported to illustrate the therapeutic procedure and to emphasize the fact that the classical treatment of this group, over a period of ten years at the Mount Sinai Hospital, carried a mortality of 64% as reported by Shick and Karelitz, (Journal A. M. A., July 30, 1932) and that introduction of the method of furnishing food, fluid and salts by venoclysis simplified the treatment, speeded recovery and reduced their mortality to 12%. This, as far as I know, is the greatest mortality reduction that has been achieved since the introduction of diphtheria antitoxin.

The specially made cannula is necessary to avoid clotting and interruption to the continuous delivery of fluid at the physiological rate. The apparatus must be carefully constructed and attachment strictly regarded, then one has in venoclysis a method of treatment by which appropriate therapeutic demands can be met more effectually than by any other system yet devised.

For children, a 5% solution of glucose in Ringers' or normal saline to which a 1% calcium gluconate may be added is the solution usually employed. Injection of sedatives may be made into the delivery tube and may be resorted to if necessary to produce rest and quiet.

The glucose and calcium reduce the rate of peristalsis, correct acidosis, and furnish nutrition. Calcium and the other mineral salts in solution enable the cell membranes to absorb and hold the fluids administered and thus overcome dehydration. Fluid by mouth is necessary only to supply local moisture. Carbon dioxid as administered in this case was given for the pulmonary condition and served its purpose well. It also aided materially in combating the rapidly increasing acidosis which began early to show signs of becoming uncompensated.

Case Report: M. G., white, female, age 3 years. Seized suddenly with a chill and vomiting later, she had convulsions followed by stool of mucus and blood. Frequent mucus and bloody stools appeared subsequently with vomiting through the night. When seen ten hours after onset, she had a temperature of 104 and rapid shallow respiration. She was crying with each expiratory effort and giving other evidences of intense pain in the abdomen and chest with extreme prostration accompanied by involuntary bowel movements every few minutes.

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*Read before the Jefferson County Medical Society.

Her arms and legs were slightly spastic. Her fingers were tightly flexed, abdomen rigid and tympanitic. Rapid incessant peristalsis could be heard on auscultation. Fine rales could be heard all over both lungs. Impairment of percussion note was present over right middle and lower lobes with increased breath sounds. Her tongue was heavily coated and the breath was hot and had a sweetish odor. She was removed to the hospital where oxygen and carbon dioxide 5% was administered 30 minutes in each hour. The chest became normal in three hours and the increased respiratory effort ceased. Her mentality cleared a little and muscle spasm was diminished. She was still unable to retain fluid by mouth, and her urinary output was scanty. The abdominal pain and frequent stools of blood and mucus persisted. At this time Doctor James Bruce saw the case in consultation. Convulsions were still pronounced and frequent, lasting from 10 to 20 minutes. She was given enemata of silver nitrate, tannic acid, and potassium permanganate. Venoclysis was now started using a solution of 5% glucose in Ringers to which was added 1 gram of calcium gluconate to each 1000 cc of solution. The cannula was tied into the saphenous vein at the point where it courses over the internal malleolus of the right leg. A very short time after the fluid began to flow, the convulsions ceased, the mental condition cleared, vomiting stopped and the fever diminished. Abdominal cramps grew milder and the stools began rapidly to diminish in frequency. Rate of flow was from 5 to 15 drops per minute.

After three days the venoclysis was discontinued but cannula was left in place and feedings of banana powder began by mouth. The stools gradually changed to a fecal nature. Some blood preceded the stools for seven days due to a small area of ulceration in the rectum. On the eighth day bleeding from the bowel having stopped, the child was discharged to go home.

Three weeks later she was on a full diet and weighed 4¼ pounds more than she weighed before her illness.

## DISCUSSION

**James W. Bruce:** I had the honor of seeing this patient with Dr. McCormack and it was certainly a desperately sick child. The diagnosis was very evident. The use of calcium gluconate by venoclysis was something I had never seen tried before, and appeared to have a marked sedative effect. It would appear to be the logical procedure in such cases. Once the canula has been introduced into the vein, no further manipulation is required. The difficulty would come in getting a small child to hold still to keep from dislodging the canula. This procedure has been used in the City Hospital to some extent with a limited degree of success.

**George A. Hendon:** One feature of the process described by Dr. McCormack is the fact that in the temperature of the patient we have a perfect criterion to guide us in the amount of the solution to be given. A rising temperature indicates either that the requirements have been fulfilled or that the limit of tolerance has been reached. These statements, of course, would balance each other—they mean practically the same thing. When the temperature begins to rise then we know it is time to reduce the amount of fluid. Individuals differ so much and some of them are more delicately poised than others. I have seen cases in which one more drop of fluid per minute would cause the temperature to rise to 103 F.; by reducing the amount from 16 to 15 drops per minute, the temperature would pursue a normal course.

Another point that might be interesting is the fact that it is a very simple and practical method of practicing therapeutic hyperpyrexia, because, without harm to the individual, we can raise the temperature to almost any point desired. We have let it go to 107 F. Upon throttling down the rate, the temperature immediately comes down.

Just a word in regard to the work of Karelitz and Shick, who adopted my method and gave me credit for it, perhaps the only instance where an Easterner has ever given anybody in this part of the country credit for anything. In their statistics, which they presented in a recent issue of the Journal of the A. M. A., they show a reduction in mortality from a certain type of intestinal toxicosis from 64 per cent to 12 per cent. In the same hospital, over a period of ten years, the mortality from this particular form of intestinal toxicosis had remained 64 per cent, and after the adoption of my method it dropped to 12 per cent, a reduction of 52 per cent. As far as I know, that is the greatest reduction in the mortality from any particular disease that has been achieved since the introduction of diphtheritic anti-toxin.

**R. L. McCormack,** (in closing): I wish to briefly call attention to the use of carbon dioxid and oxygen in these cases of alimentary toxicosis. Pneumonia develops quite frequently in these cases and we know that toxemia and acidosis is always present, as well as some degree of shock. Carbon dioxid is a known stimulant of the peristaltic action in the blood vessels all over the body as well as in the bronchi. That has been demonstrated by research work. It also aids, along with the introduction of glucose and physiological salt solution, in combating the appearance of an acidosis.

# CONGENITAL PNEUMOTHORAX*

Philip F. Barbour, M. D.

Louisville.

Congenital pneumothorax is a very rare condition easily overlooked on account of the technical difficulties of examination of the chest in new born babies. It is possible that an x-ray photograph of every baby badly asphyxiated at birth might reveal that it is more common than statistics indicate.

A very complete review of the literature on congenital pneumothorax by Dr. Jacob Stein was printed in the American Journal of Diseases of Children, issue of July 1930 pages 89–95. He made a very thorough examination of the literature up to the date of this article and records four cases adding one of his own. A painstaking examination of the Index Medicus does not list any paper upon this subject after that date. There may have been case reports of such a condition which were not amplified to the proportions of a formal recorded paper, otherwise the two cases which I am reporting will bring the number up to seven.

The first case was seen for Dr. H. A. Davidson about the 10th day of life on account of persistent cyanosis and dyspnea. There was marked retraction of the ribs at the diaphragmatic insertion on inspiration more marked during crying. Breath sounds were absent on the left side but faint puerile respiration was heard over the right side posteriory. The heart was displaced to the right but the sounds were normal in character though of course not heard in the normal areas. The impression was that the baby had not completely distended the lung and that atelectasis was causing the dyspnea and cyanosis. There was some digestive disturbance, the stools showing large curds. The mother's milk having dried up the baby was put on acid milk which seemed to have agreed better. On November 9th, 1931, at the age of about three weeks, the dyspnea increased and an x-ray picture was taken by Dr. Keith. A pneumothorax having been diagnosed, the question of the advisability of puncture was discussed with several doctors. As pneumothorax will usually absorb if sufficient time is allowed, a policy of watchful waiting was followed. However, on November 14th the dyspnea was more severe so a needle was introduced in the sixth interspace and a gush of air was heard and felt. The baby survived only a few minutes. No autopsy was held.

The maternal grandmother had died of tuberculosis and the mother in childhood had had juvenile tuberculosis, which was healed. Otherwise the family history was negative. This was the second child and the gestation and labor were practically normal.

The second case was seen with Dr. H. C. T. Richmond at the Jewish Hospital on January 10, 1933, the baby being one day old and presenting marked cyanosis and dyspnea. The family history was essentially negative, also the gestation and the labor except that the placenta was abnormally small. There was some trouble in getting respiration started and then the difficulty of inspiration was noticed with the marked sinking in at the diaphragmatic insertion. Breath sounds were not heard over the left side though there was no marked displacement of the heart and no abnormal heart sounds. Puerile respiration was heard over the right side. The baby was put into an oxygen tent and seemed for a while to be breathing more easily. On the second day however, the dyspnea became so urgent that a needle was introduced into the chest with a pronounced gush of air. Immediately afterward, breath sounds could easily be made out over the left chest and the lung was believed to have expanded to meet the chest wall. There was no improvement however, in the condition of the baby and some hours afterward it died. No autopsy was obtained.

There are certain definite causes which will explain the development of pneumothorax in the older child and the adult. Such diseases as present violent coughing spells, such as measles, whooping cough, influenza, emphysema or reflex irritation and more commonly a pneumonia or a peripheral tuberculosis are recognized as potential agents in breaking through from a bronchus into the pleural cavity. Severe trauma of the chest with puncture of the lung causes this condition. Abscess of the lung or an empyema might break through the superficial air vesicles and allow entrance of air into the pleural cavity.

None of these lesions could have been present in the reported cases and the cause must remain unknown. Doubtless there was a congenital malformation.

The first case was reported in 1878 and was recognized on autopsy from the outward rush of the contained air. The second case was reported in 1917 and the diagnosis was properly made and confirmed by x-ray findings. This child lived longer than three months and died from bronchopneumonia. The fourth case reported in 1928 had a progressive collapse which was treated by puncture and withdrawal of measured quantities of air with apparent relief.

Dr. Stein's own case which was seen when one week old did not give a history of cyanosis or dyspnea but the x-ray pictures were very characteristic. He mentions the displacement of the organs, heart, etc., to the left and absence of breath sounds over the affected right side. He also gave a barium meal to eliminate the possibility of a diaphragmatic hernia. This boy was living at the time of the report. His picture showed the right side of the thorax enlarged, the left smaller than normal and a pigeon like deformity of the chest. Repeated fluoroscopic examinations had shown no diminution in the pneumothorax. Surgical treatment had been considered but not attempted in this case. The boy was two years of age but below the normal in size.

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*Read before the Medico-Chirurgical Society.

A fuller report of these cases will be found in Dr. Stein's most interesting article and I am indebted to it for much of the information in this paper.

## DISCUSSION

**D. Y. Keith:** In looking up this subject, I searched the files of American X-ray journals as far back as 1914 and the only report I could find was the one which has already been referred to by Dr. Barbour.

We know that the great majority of cases of pneumothorax—variously estimated at from 77 per cent to 90 per cent—are of tuberculous origin. However, we do see a certain number of cases that are not tuberculous; I have seen several resulting from measles. This is the only case of so-called congenital pneumothorax, occurring in a child of this age, that I have ever seen. Strictly speaking, I do not believe that congenital pneumothorax ever occurs, if by that term it is meant that the child is born with air in the lungs. It is more likely a congenital cyst.

According to the literature, considerable work along this line has been done in the past few years. W. W. Wasson of Denver, Colorado, records his results in a series of cases in which he made x-ray pictures before children were born, and after they were born he rayed them at intervals of two months until they were six years old. This was done with the idea of obtaining a series of plates showing the normal shadows in the lungs of children at various ages as an aid in detecting and identifying pathological changes occurring in the lungs of children who were ill. In several instances he obtained films of children who were later still-born and in none of these, if I recall correctly, was any heart shadow shown. There was no differentiation between the abdominal viscera and the chest viscera of the fetus in utero.

**H. C. T. Richmond:** I wish to express my pleasure in being the guest of the Society this evening. There is very little I can add to what has already been said concerning the case reported by Dr. Barbour in his paper.

I had this baby's mother under observation from about the second month of pregnancy until the birth of the child, and nothing unusual took place during the period of gestation. The labor itself was normal. I was called about three o'clock in the morning and ordered her to the hospital. I saw her at five o'clock and again at nine o'clock, and delivered the baby about 10:15 a. m. The baby began to breathe very readily but it did not have that lusty cry that a baby should have when it is born. During the day I observed that the baby was not breathing or crying in a normal manner. I went over it very carefully but could detect no trouble. I then called Dr. Barbour and am indebted to him for the diagnosis and also for suggestions as to the treatment of the child.

**Oscar O. Miller:** Cases such as this are extremely interesting. I have never seen a case of spontaneous pneumothorax in a child as young as in Dr. Barbour's case. I recall a report made by Dr. Katzmann, of a case in which a child with pertussis ruptured his lung in a violent fit of coughing.

Dr. Barbour did not say on which side the pneumothorax was located in the five cases he mentioned. I believe it occurs much more frequently on the left side than on the right side.

In the first case reported, there was a complete pneumothorax with definite displacement of the heart to the right. This was unquestionably what we speak of as suffocative pneumothorax due to a valve-like action of an opening in the pleura of such character that, when the child coughs or cries, it opens the valve and allows an access of air into the pleural cavity and immediately closes. In such cases, a simple aspiration does little good, because immediately upon relieving the pressure the child again coughs or cries and fills up the pleura again. They require frequent and at times, continuous aspiration.

I am inclined to believe that, in the case reported, either an atelectasis or a pneumonic process was present and caused the child's death: certainly there was not enough pneumothorax present to result in death.

**C. D. Enfield:** I have never had a case of this type to diagnose, but I recall that, in Sante's book on x-ray diagnosis of diseases of the chest, there appears what may be an explanation of what took place in the case reported.

In the first place, congenital pneumothorax is extremely rare. Sante believes that it does not occur at all; that what does happen is that there is congenital atelectasis of one or more lobes of the lungs and that these lobes, striving to expand and fill up the empty chest cavity, become over-stretched and rupture, thus creating a pneumothorax.

**Morris Flexner:** I have never seen a case of congenital pneumothorax. In the first case reported, Dr. Barbour said that the child died very quickly. I would like to ask him how the child died; whether it went into collapse.

One thing that impressed me was the responsibility he took in aspirating this child. I saw a patient die at Camp Taylor immediately following aspiration, and at autopsy nothing could be found except three puncture wounds in the pleura over the lungs, and I wondered if that could be the explanation of this child's death.

I would also like to ask Dr. Barbour whether there was anything in the appearance of the placenta in either case that would make him suspect the presence of tuberculosis.

**John W. Moore:** I agree with Dr. Miller that the first case was undoubtedly one of those ball-valve cases such as he described. It has been my experience that such cases are always due to some inflammatory condition resulting in a little cavity in the pleura, and upon rupture of any portion of that cavity a flap is formed which acts as a flutter-valve, and it is extremely difficult for a pathologist to find that flap-like condition.

**J. Garland Sherrill:** The thing that impresses me in connection with the cases reported by Dr. Barbour is the value of a post-mortem as a means of clearing up the diagnosis, which is just now coming to be generally recognized in this country.

One point to be remembered in tapping the chest in pneumothorax is to release the air gradually and not let it rush out with the attendant danger of affecting the circulatory apparatus in such a manner that the patient may die of collapse.

**P. F. Barbour,** (in closing): I suppose the term "congenital," strictly speaking, is inaccurate, but it is the one generally used in speaking of pneumothorax occurring immediately after birth. Usually the time is too short for the child to have developed an inflammatory condition of any kind.

In the first case reported, we thought the pneumothorax would absorb if we allowed it sufficient time, but the child became so violently ill that we considered it best to let the air out. The amount removed was not more than 30 c. c.

Answering Dr. Flexner's question as to the character of the placenta, it was rather small, but there was nothing abnormal about the placenta in either case.

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**Tuberculous Primary Infection and Tuberculous Influence of Vitamin E on Inoculation Tumor.**—Engel found that the growth of vaccination tumors is not noticeably influenced by parenterally administered wheat germ oil with its high vitamin E content. The life span of the carcinomatous animals was reduced by this substance, and the growth of their neoplasms was not promoted. The sarcomatous animals were considerably less impaired.

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# PERICARDECTOMY FOR TUBERCULOUS PERICARDITIS*

R. A. Griswold, M. D.

Louisville.

This is the report of an attempt to treat active tuberculous pericarditis by pericardectomy. This operation has become well established among surgeons interested in cardiac disease for the relief of chronic adhesive pericarditis whether of tuberculous or other origin. It has seldom been carried out in the presence of active tuberculous infection as shown by a fluid exudate. In three such cases reported in recent years, there was one operative death while two patients were improved, although in one of these cases a tuberculous pericardial sinus persisted.

The subject of the present report was a negro male, 33 years of age, who was admitted to the medical service at the Louisville City Hospital. Three weeks prior to admission he first noticed shortness of breath, epigastric pain and abdominal swelling; and about one week later swelling of the feet and ankles. He said that he had never been sick before. Physical examination at that time showed limitation of motion of the thorax and signs of fluid in both bases. The heart was apparently displaced to the right and heart sounds were weak. The liver was enlarged but no abdominal fluid was demonstrable. Feet and ankles were edematous. Pulse was weak and rapid, about 150 per minute. Blood pressure was 124-72 mm. of mercury. Temperature was 101.8. X-ray and fluoroscopy on several occasions showed fluid in both pleurae and a large water bottle shaped heart shadow, the margins of which did not pulsate. The Wassermann was positive and the urine normal. He continued to run a febrile course with rapid pulse. Pulse pressure decreased and at times the blood pressure could not be obtained at all. Tapping of the pericardium seemed to improve the pulse pressure and symptoms. He was first tapped on July 15, at which time 450 cc. of fluid was withdrawn. Tapping was repeated August 9 and 23. On the latter date 1300 cc. of fluid was removed and 800 cc. of air injected.

On transfer to surgery the venous pressure was 170 mm. of water and the vital capacity was 1000 cc. The air in the pericardium was tapped off: signs of fluid were still present in both pleural cavities. There was bulging of the left lower chest anteriorly and cardiac dulness extended from the right nipple to the left mid-axillary line, where it was lost. Heart sounds could not be heard. Pulse rate was about 140 per minute. Blood pressure was 84-70 mm. of mercury and difficult to make out. There was no fluid demonstrable in the abdomen but the liver extended half way to the umbilicus. There was marked orthopnea. Guinea pigs had been injected with fluid but showed no signs of tuberculosis. The diagnosis of tuberculous pericarditis was made, however, on account of the well known fact that it may occur without demonstrable organisms in the fluid and because all other causes such as rheumatic fever, scurvy, purulent infection and uremia could be ruled out.

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*Read before the Jefferson County Medical Society.

Surgery was recommended after some hesitation in this case and was finally decided upon because of the fact that he was going down-hill under good medical therapy. The presence of fluid and active tuberculous infection prevented it from being an ideal case for pericardectomy. The usual dangers of surgery in active tuberculosis had to be faced, namely a tuberculous sinus and dissemination of tuberculous infection. There was no evidence of tuberculosis elsewhere, however, and his disability seemed entirely due to the mechanical effects of pressure upon the heart and intrapericardial vessels. Since the patient was obviously about to die from cardiac embarrassment, it was thought justifiable to relieve this by pericardectomy, removing as much of the infected tissue as possible and hoping that with an improved circulation he would show a stronger resistance to his infection.

Before operation 150 cc. of fluid was removed from the pericardium. Under local anesthesia a semi-lunar incision was made from the mid-clavicular line on the left over the third rib curving inward and downward along the right border ot the sternum and curving to the left at the lower end of the sternum along the seventh costal cartilage to the mid-clavicular line. A flap of the soft parts was reflected back exposing the costal cartilages. The fourth, fifth and sixth cartilages with about one inch of rib were removed sub-periosteally, the internal mammary vessels tied above and below and about half the width of the sternum ronguered away. The left pleural sinus overlay the tense, thick pericardium. It was dissected back by a combination of sharp and blunt dissection. The pleura was torn in several places and the cavity found to contain about 1000 cc. of fluid, which was removed. One tear in the neighborhood of the left pulmonary vessel showed the interior surface of the pleura to be studded with tubercles. Openings in the pleura were closed with interrupted silk sutures after the lungs had been expanded and air driven out of the pleura by oxygen administered under pressure. The right pleural sinus was likewise dissected off the pericardium, fortunately without entering the cavity.

The pericardium was aspirated again and about 200 cc. of fluid withdrawn. It was then incised and another 500 cc. of fluid gushed out or was aspirated. The inner surface of the pericardium was studded with tubercles on both the parietal and visceral surfaces. The parietal pericardium was about 1cm. thick. There were fibrinous adhesions present about the base of the heart and the region of the inferior vena cava. These were broken up with the fingers. There was more pathology posteriorly and the exudate here was thicker. There was little interference with cardiac action during these manipulations except when the right pleura was dissected down by the phrenic nerve and pulmonary vessels. It was necessary to rotate the heart about 90 degrees to the left for this dissection and the pulse rate rose to about 170 during this time. The anterior pericardium was first removed and then by grasping the cut edges more pericardium could be pulled out on each side and dissected free from the pleura. This dissection was easier deep along the lateral borders of the heart than it had been anteriorly as the pluera was thicker and not so easily torn. Pericardium was removed as far back as the pulmonary vessels and the phrenic nerve on both sides. It was also removed from the diaphragmatic aspect of the heart as far back as the vena cava, cutting the pericardio-diaphragmatic ligament.

In closure the inter-costal tissues were sutured to the tissues on the anterior surface of the sternum. The flap of pectoral muscle was sutured at its origin with a second layer of silk. The subcutaneous tissues and skin were closed with silk without drainage. The blood pressure immediately after operation was 90-60 mm. of mercury and pulse rate was 140 per minute. The pathological report was tuberculous pericarditis.

The immediate convalescence was uneventful. The liver came down to normal size in about three days and the dyspnea disappeared. The pulse rate at this time was 100 to 120 per minute and the blood pressure was 100-66 mm. of mercury. One week after operation the venous pressure had dropped to 110 mm. of water. The wound soon healed but on the 12th day about 200 cc. of clear fluid drained from the incision forming a sinus which remained open. Two weeks after operation the pulse rate was 120 per minute. Blood pressure was 98-60 mm. of mercury and venous pressure 90 mm. of water. Vital capacity in a sitting position was 1200. On the 18th postoperative day, x-ray showed that the size and contour of the heart had returned to fairly normal appearance but there was fluid in the left pleural cavity and slight diffuse mottling throughout both lung fields. It was thought that this was extension of pulmonary tuberculosis.

Circulation remained in fairly good shape, no signs of decompensation recurring. Drainage from the pericardial sinus decreased somewhat but large amounts of fluid were aspirated from the pleural cavity at frequent intervals. The general condition grew worse and he became progressively weaker, dying on the 49th postoperative day. Although the pulse rate remained rapid, good pulse pressure was maintained. Blood pressure was 110-65 mm. of mercury four days before death. Unfortunately no post-mortem could be obtained. It was felt, however, that death was due to the tuberculous pleurisy which had been unsuspected before operation and to general dissemination of the tuberculous infection.

## DISCUSSION

**Morris M. Weiss:** This man happened to be on my service on the male medical colored ward last summer and I can attest to the fact that his clinical course was going rapidly downward, despite the fact that he had been tapped on three separate occasions. It looked as though death was imminent. Dyspnea and orthpnea were always very marked.

Because of recent reports on the treatment of tuberculous pericarditis by means of pneumopericardium (the pneumo being oxygen), the rationale being the same as the treatment of tuberculous peritonitis by means of the repeated injections of oxygen, it was suggested that this man be likewise treated in this manner. Unfortunately the treatment was not carried out either sufficiently or intensely.

I am convinced that every case of tuberculous pericarditis should be given the benefit of injections of oxygen into the pericardial cavity after conservative treatment has been tried since many of these cases tend to improve spontaneously. The fluid in the pericardial cavity tends to disappear just as it does in a tuberculosis pleural effusion and the admonition not to remove fluid from the tuberculous pleural cavity applies with equal force to fluid in the tuberculous pericardial cavity. Of course, when it accumulates rapidly and causes a great deal of distress, tapping is indicated. However, it is well worth while to keep in mind the injection of oxygen as a therapeutic measure in the treatment of tuberculous pericarditis.

**Louis Frank:** I would like to ask, before the discussion closes, whether at autopsy in this case the primary focus of infection was found?

A comparison has been made of the treatment of tuberculous pericarditis with the treatment years ago, of tuberculous peritonitis, but I believe it will be found that there are very few authentic cases of tuberculous peritonitis on record that have lived any great length of time following either injection of oxygen or opening the abdomen. Later, when we learned to look for the nidus of infection and remove it, many of these cases recovered.

After all, in tuberculous pericarditis as in tuberculous peritonitis, the focus of infection must be found and removed if the results obtained are to be in any sense permanent. The case reported tonight is a very beautiful demonstration of what can be done in the way of chest surgery, but insofar as any permanent benefit to a patient with tuberculous pericarditis is concerned, unless the origin of the infection is discovered and removed, it does not mean anything.

Now, in adhesive pericarditis we have a very different proposition. This condition is not necessarily of tuberculous origin. Dr. Hugh Trout, in his Presidential address before the Southern Surgical Association, reviewed the literature on the subject of adhesive pericarditis very thoroughly. Here we have a problem very different to that presented in the presence of a miliary tuberculosis. Therefore, when we see a case of this kind we should, by pleural aspiration and every other means at our command, rule out the presence of any widespread infection before we attempt operative interference.

**P. A. Turner:** I would not like to see this discussion close without some complimentary remarks for the men who made the diagnosis in this case. This condition is so rare that it is practically never seen, and for these men to have diagnosed it is something of which this Society should be proud. I have been identified with tuberculosis work for more than twenty years and I have never seen a case of tuberculous pericarditis. I believe only three cases are on record, and I would imagine that it is invariably fatal.

**Sam A. Overstreet:** When this man first came to the x-ray department for examination he was apparently in great distress from a cardiac rather than a respiratory embarrassment. As Dr. Johnson pointed out, it was impossible to make a diagnosis of pulmonary tuberculosis from the first films made, and the man appeared to be a safe operative risk. However, when he came back for further observation two weeks after operation, the picture had entirely changed. It was then that the films showed the presence of a miliary tuberculosis, and we felt justified in attributing his death two weeks later to this condition rather than to the cardiac complication.

**R. A. Griswold,** (in closing): Referring to the remarks of Dr. Frank, I would very much have preferred, had this man shown any signs of combatting the infection to have drained off the fluid and then operated five or six months later for a chronic adhesive pericarditis. However, I did not see the use of letting him die as he most certainly would have done, without making some effort to save him.

Sprague and White recorded two cases ot active tuberculous pericarditis, with fluid one of which was operated upon by Churchill and one by Whitmore. In one case operated, death occurred. In the other case, the patient was greatly improved except for a persistent pericardial fistula. Two years ago, Cutler operated upon a similar case which I had the opportunity of seeing about a year after the operation. This patient had definitely improved and showed no signs of tuberculosis, although immediately after operation he had a flare-up of active miliary and pulmonary tuberculosis.

As to the focus of infection in these cases, it is usually in the mediastinal lymph nodes. I have seen several cases autopsied and the only demonstrable lesions were in the pericardium and the mediastinal lymph nodes. It is, of course, impossible to dissect out the lymph nodes and thus remove the focus of infection. In view of the fact that two of the three cases recorded were definitely improved by operative procedure, I considered it worth while to attempt it in this case.

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# CLINICAL PATHOLOGICAL CONFERENCE; CASES FOR DIAGNOSIS*

Wm. Edgar Fallis, M. D., and Harry Weeters, M. D.

Louisville

Patient J. G., age 58. White male.

Past History. During last few years patient noticed that he could not walk rapidly for any long distances, or climb steps without stopping for rest.

Present Illness. October 8 consulted physician in his office for pain in chest, cough, shortness of breath, muscle soreness, aching eye balls and chilly sensation.

Physical examination at that time gave: vesico-vesicular breathing throughout both lungs, numerous moist rales over larger bronchial tree; no increase in vocal fremitus or resonance; some difference in transmission sounds at different areas.

Pulse rate 88-90, regular, sounds somewhat indistinct with some difference in tones. Some variation in the volume of the individual pulse wave. No definite valvular lesions could be made out. No accentuation of pulmonic second sound.

Heart was of approximately normal size. Apex beat was at fifth interspace, 1½ inches below nipple and slightly to inner side. Blood pressure 146–70.

Abdomen, slightly distended, otherwise negative. No tenderness.

Extremities, negative save for varicosity of left leg.

Urinalysis, specific gravity 1.027, trace albumin, sugar, negative, microscopic essentially negative.

October 9th patient confined to bed. Temperature 101, pulse 96, respiration 22. Chief complaint, pain in left chest, cough. Condition improved until fifth day. Temperature dropped to 97.5, pulse to 90, respiration to 20. Patient went to to bathroom to shave when he was seized with a severe pain in left chest radiating into the upper abdomen and requiring morphine to relieve.

Sixth day, temperature 97, pulse 130, respiration 30. Patient restless, pain in chest and upper abdomen, abdomen flat and undistended, only one heart sound audible.

Chest, a few large moist rales—no evidence of consolidation. No peristaltic waves observable and no intestinal sounds could be heard. Pinched facial expression; patient anxious and restless. Bowels moved with enema. Blood pressure 116-70. Patient admitted to hospital. At this time there was marked nausea, vomiting of yellow to brownish yellow material. Heart showed absolute irregularity, pulse too rapid for enumeration. Blood pressure 150-90. Board-like rigidity of abdomen, marked tenderness of left lower quadrant. Skin dehydrated. Finger nails cyanotic. Blood count, 26,100 white cells, 95 per cent polymorphonuclears. Urine one plus albumin occasional granular casts.

Following day, vomiting of brownish yellow material, delirium, labored groaning respiration, total irregularity of pulse.

Patient died in early morning.

## Autopsy

Chest, There is abundant free, straw colored fluid in both the pleural and pericardial cavities, approximately 500–600 cc. in each pleural cavity and about 200 cc. in the pericardial. The lungs are heavy and boggy, and on sectioning, cut surface yields abundant fluid.

Heart. The myocardium is streaked with gray. The myocardium shows marked fibrous steaking. There is extensive sclerosis of the coronary vessels. Lying within the *mitral orfice*, but chiefly on the ventricular side, is an ante mortem clot about 15 mm. in diameter. This clot is firm, and shows uniform distribution of gray fibrin mixed with red blood cells; the clot is oval shaped, has surface smooth-like a pebble, and has two small projections approximately 3 mm. in length and about 2 mm. in diameter, which show freshly broken surfaces.

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*Read before the Jefferson County Medical Society.

Abdomen. The abdomen is distended and contains approximately 1 liter to 1½ liters of dark blood stained fluid. The entire intestinal tract, from the duodenum through the sigmoid, is swollen and dark purplish red in color, having the appearance of a strangulated intestine. Examination of the superior mesentery artery reveals embolus completely plugging same.

The left kidney shows multiple anemic infarcts.

The right kidney is slightly contracted and granular.

The spleen, likewise, shows multiple anemic infarcts.

### Report

Coronary sclerosis. Intra-ventricular clot. Embolus of superior mesentery artery. Pulmonary edema. Anemic infarcts of left kidney and spleen.

### DISCUSSION

**Emmet F. Horine:** When I first read over this very interesting case report, I was particularly impressed by the fact that the details were apparently dictated by several different persons. I later learned that at least three physicians were connected with the case.

The first thing that attracts our attention is that this man had experienced shortness of breath over a period of several years prior to his present illness, which would certainly suggest the possibility of some heart involvement.

The next thing that engages our interest is that he presents himself complaining of pain in the chest. We are not told the exact location of this pain except that it is in the left chest.

In the presence of pain in the left chest, lasting two days and radiating downward, we would naturally think of a coronary thrombosis. Pain in the chest, without any reference to its duration, would bring to mind so-called angina pectoris (which is now believed to have a coronary basis). Ordinarily in this condition the pain is substantial and radiates upwards into the left shoulder; or, as frequently happens, down the left arm, or it may radiate to both arms. However, we must remember that pain from coronary involvement is usually behind the sternum and in some instances can hardly be called pain, being more of a pressure sensation. Frequently it may be said to be in the arms alone, the patient not complaining of any pain in the chest. Occasionally the patient will describe the location of the pain as in the neck or lower jaw. Sometimes the pain may be in the upper abdomen—so-called angina abdominalis. However, any pain from the umbilicus up, brought on by effort, would certainly suggest coronary involvement. The pain in coronary thrombosis is practically the same as in angina pectoris, the difference being in their respective durations; in angina pectoris it usually lasts only a few minutes (although sometimes longer) while in coronary thrombosis the pain may last hours or even days. I have seen a few cases in which even coronary thrombosis was demonstrated at autopsy and yet these individuals had not complained of pain prior to death.

The heart is said to have been normal in size. There were no murmurs present and that being true valvular lesions would be fairly definitely ruled out. The rheumatism he had was probably not acute rheumatic fever.

The blood pressure was normal. The heart rate on the first examination was recorded as ranging from 88 to 90; temperature 100 F. The abdomen was primarily negative. Later on the temperature is reported as 101 F. It might be asked, why this increase in temperature? Certainly if this man had coronary thrombosis with infarction, the infarcted area constituted a foreign protein. Always in such cases unless there is marked shock and early death ensues, the patient has an increase in the temperature due to the fact that foreign protein is absorbed from the infarcted area.

On the third or fourth day, with the abdomen still negative, the blood pressure had dropped to 116-70. We do not know, of course, the relationship of the blood pressure to the man's symptoms. First it is given as 146-70 and now as 116-70. Ordinarily in coronary thrombosis there is a marked fall in the blood pressure, sometimes as much as 100 mm. of mercury in an hour.

The patient still had no abdominal symptoms. Now he is moved to the hospital and begins to vomit, and the abdomen is found to be of board like rigidity with tenderness over the lower left quadrant. Something has undoubtedly happened within the abdomen The heart had become totally irregular. The blood pressure is reported as 150-90. With this board-like rigidity of the abdomen and increase in blood pressure, I should say he probably had a peritonitis. Peritonitis is one abdominal condition in which we find ordinarily an increase in the blood pressure. Blood count showed 26,500 white cells; 95 per cent polymorphonuclears. Vomiting continued and death ensued. In my opinion we should find at autopsy in this case, coronary sclerosis, myocardial fibrosis and very likely coronary thrombosis and infarct. As to the abdominal condition it is anybody's guess, but my interpretation of the symptoms would be that he had within the abdomen some form of vascular mesenteric occlusion which gave rise to gangrene and later to peritonitis.

My diagnosis, therefore would be: Coronary sclerosis, with probable coronary thrombosis and, in the abdomen, mesenteric occlusion with terminal peritonitis.

**C. J. Armstrong:** My impression of this case is that the man's trouble began outside the abdomen with the terminal condition within the abdomen. The only thing in his past history of any significance was the shortness of breath on slight exertion, which would indicate some form of cardiac disturbance. It is probable that he did have, as Dr. Horine suggests, a coronary thrombosis or occlusion and, as a result of that, a mesenteric thrombosis. At the same time, there are some other conditions that should have consideration. In acute pancreatitis, for example, the onset of pain is very sudden and very severe; it may be intermittent or it may be continuous. The pain is usually referred to the shoulder or chest and there is exquisite tenderness over the upper abdomen with or without distention, which was apparently absent in this case. We find a leukocytosis in acute pancreatitis with an increase, sometimes marked, in the pulse rate. Vomiting was a late symptom in this case whereas in acute pancreatitis, next to extreme pain, vomiting is perhaps the pronounced symptom being very severe and almost continuous.

There are other abdominal conditions which it might be well to consider, such as biliary colic, perforated ulcer and intestinal obstruction.

I am not very familiar with the symptoms of mesenteric thrombosis, but my impression is that pain is not necessarily associated with this condition. About a week ago I saw a patient whom several doctors thought had mesenteric thrombosis and he did not complain of any pain. This patient came to the hospital with erysipelas which cleared up in about six days. Intestinal obstruction developed which could not be relieved by ordinary measures. We did not operate and the patient died. No autopsy was obtained but death was attributed to blood stream infection causing mesenteric thrombosis.

**Oscar E. Bloch:** When the report was read I had very much the same thoughts that Dr. Horine has expressed. The pain in the chest and shortness of breath made me think of what we have always called angina pectoris but which the heart specialists are now taking a great deal of pleasure in calling coronary thrombosis. However, I still like the old term, angina pectoris.

The fact that this man had an elevation of temperature was a confusing symptom, but when his death occurred following symptoms of peritonitis, there could be no possible explanation except some interference with circulation within the abdomen which, of course, would point to mesenteric thrombosis.

**Wm. Edgar Fallis,** (in closing): This case presented a very interesting problem. I knew the man had some type of obstruction, but the condition was so very acute and came on so rapidly that I barely had time to make up my mind that the abdominal condition was probably secondary to a coronary sclerosis or occlusion.

One symptom was particularly marked in this case and I have noticed the same thing in other cases of the same type; that is, an extreme restlessness. There is no other condition that I know of in which there is such a marked degree of restlessness, and it was largely upon this symptom that I based my conclusion.

Another thing was that the type of obhtruction certainly indicated an interference in the circulation because, first, the late vomiting and, second, there was no peristaltic wave in the abdomen. In mechanical obstruction the vomiting would have occurred earlier and there would have been an exaggerated peristaltic wave. The paresis of the intestinal tract aided very much in arriving at a conclusion.

# CLINICAL PATHOLOGICAL CONFERENCE*

J. R. Gott, M. D., and A. J. Miller, M. D.

Louisville.

Male, white, age 54 years. Two years prior to admission, patient states he was subject to attacks of indigestion which were relieved by taking bland food. One year ago, the patient suffered from attacks of indigestion similar to those described the preceding year, except that they were associated with more discomfort and were sufficiently severe to require the consulting of a physician. At this time he says his stools were definitely tarry in appearance. His physician placed him on a diet of milk and cream and gave him powders to take, which gave him complete relief after a period of three weeks. He continued symptom free on a fairly liberal diet until two weeks ago. At this time he suffered a recurrence of his previous complaint, the pain being much more severe than at any time previous. He was still able to get some relief from food, (especially milk and cream) and his powders, but not entirely. During the past week he feels that he has become definitely weaker and for the past five or six days his stools have been tarry in appearance. On day of admission the patient complained of nausea and vomited about a pint of what he described as pure blood. There has been no appreciable loss of weight during the past two years. The remaining history is not remarkable.

Physical examination reveals a fairly well developed, and nourished male, white, aged 54 years, lying flat in bed; he is very weak, pale and becomes dyspnoeic on lifting his head or changing his position in bed. His temperature is 97°, respiration 28, pulse 130; blood pressure 90-60. His pulse is very weak. Skin and mucous membranes show marked pallor. Most of his teeth are absent; those remaining being moderately carious and there is moderate pyorrhoea alveolaris.

---

*Read before the Jefferson County Medical Society.

Lungs and heart are negative for organic disease. There is slight tenderness to pressure in the epigastric region and slight voluntary guarding over this area. No definite spasm or masses could be demonstrated. The remainder of the examination was essentially negative.

A blood count taken on admission showed red cell count of 1,370,000, 30 per cent Hb.; white blood count 14,750; polys. 81 per cent; lymphos. 18 per cent; monocytes 1 per cent.

Urinalysis was not remarkable. Wassermann negative.

Progress Notes: The patient was not allowed anything by mouth and was given a normal saline infusion and 10 per cent glucose intravenously. The day following admission patient was given a citrated blood transfusion of 350 cc.; also a Levin tube was introduced into stomach for continuous drainage. The material obtained through this tube did not contain blood. Beginning the following day, since there was no further evidence of hemorrhage, the patient was given two ounce feedings of lactose and milk every three or four hours, each feeding being preceded by a gastric lavage with a small amount of tap water to determine whether or not there was any hemorrhage. On the fourth day of hospitalization fresh blood was obtained through the tube. All feedings were immediately discontinued, the stomach was lavaged with tap water until the return flow was clear; following this 500 cc. of citrated blood was given and the patient seemed improved. About three o'clock the following morning the nurse noticed blood coming from the stomach tube and about the same time the patient vomited about 500 cc. of almost pure blood. His pulse became very weak and rapid, his skin became cold and moist and he developed definite air hunger. Gastric lavage with tap water was again performed until the fluid returned clear. He was given normal saline infusion, intravenous glucose and another transfusion of 500 cc. of citrated blood. After this hemorrhage the patient's general condition and his blood count remained about the same as previously, although the patient seemed a little more apprehensive and questionably somewhat weaker. Morphine was given in small doses at frequent intervals. Examination of the fluid obtained through the stomach tube revealed the presence of free HCl., but a quantitative analysis, after a test meal, was not attempted. The patient's condition did not show any appreciable change during the next few days, during which time he was given nothing by mouth, glucose being given by continuous venoclysis. His stools were positive for occult blood.

On the fifth day following this last hemorrhage, there being no further evidence of hemorrhage, he was again allowed interval feedings of lactose and milk through the Levin tube. About this time he began to complain of nausea and an almost constant epigastric discomfort. His epigastrium was also more tender than it had been previously. During the next five or six days there was no essential change in the patient's condition. The milk formula feedings were continued and the patient still complained of slight nausea and some pain in the epigastric region. At this time there seemed to be definite spasm of the muscles in the epigastric region. Barium given by mouth on x-ray examination revealed a constant filling defect in the prepyloric area which was thought suggestive of malignancy. The patient did not show any definite improvement and in addition to the spasm previously described, there was a questionable mass in the epigastric region. The possibility of a perforation was considered and this, in addition to the lack of response to the procedures being used, seemed to justify exploration. The patient was scheduled for operation, another transfusion to be given prior to this, but the patient became rapidly weaker and died on the twenty-fourth day of hospitalization.

### AUTOPSY

The post-mortem findings show that this individual had a peptic ulcer, the distal portion of which had eroded the wall of the stomach over an area about 5 cm. in diameter, the posterior wall of this defect forming a part of the pancreas. The erosion extended into the gastrocolic omentum, occluding the middle colic artery and produced an ulcer in the colon. Death is attributed to the final rupture of the ulcer into the lesser peritoneal cavity.

### DISCUSSION

**Sam A. Overstreet:** This patient came to the x-ray department without having had a barium meal, and after barium was given him it was hard to make a satisfactory diagnosis. One thing that was perfectly obvious, however, was the massive filling defect in the mid-portion of the stomach and it appeared to be quite definitely the type of obstruction found in malignant disease. Three films were made and a discussion ensued as to whether the lesion was an ulcer or a carcinoma and, after going over the films carefully, Dr. Johnson and myself agreed upon an interpretation of malignancy. We felt that the defect was entirely too large for an ulcer.

**Hugh Leavell:** This is the case of a white man, age 54, who had suffered from indigestion for two years, with a definite history of having passed blood with his stools as long as a year before his admission to the hospital, which I think is quite important. Then a short attack prior to admission, with recurrence of tarry stools and massive haematemesis. Then admission to the hospital in a condition of shock, with epigastric tenderness, subnormal temperature, marked secondary anemia, and polymorphonuclear leukocytosis.

From a diagnostic standpoint certain facts are patent. In the first place, free HC1. is found in the stomach. The x-ray findings offer, perhaps, the most interesting and conclusive diagnostic data. Then a palpable mass in the abdomen which developed during his hospital stay of twenty-four days.

I think it is possible to rule out any blood dyscrasia or blood disease in view of the x-ray findings. It is interesting to consider just what effect, from the standpoint of diagnosis, that one simple procedure had. We can rule out blood dyscrasia, telangiectasis, cirrhosis of the liver, and practically all other conditions that give rise to bleeding from the stomach, entirely on the basis of the x-ray findings, and can limit our discussion to the possibility of ulcer or malignancy of some type, a benign tumor and, perhaps, syphilis of the stomach, although the latter condition can be pretty definitely ruled out in the presence of a negative Wassermann test.

The fact that this man's trouble had existed for two years with a history of bleeding a year before admission to the hospital would favor a diagnosis of ulcer, as would also the presence of free HC1. in the stomach. Certainly the age of the patient is not against his having an ulcer. As to the x-ray findings, if the ulcer had penetrated into the region below the stomach and perhaps ruptured into one of the large arteries, a lot of blood might have been penned up there. However, I would say that the x-ray findings favor carcinoma, which might have developed on the base of an old ulcer. The possibility of a benign tumor is very slight. Therefore, I think the most likely diagnosis would be carcinoma engrafted on an old peptic ulcer.

**J. Duffy Hancock:** Dr. Gott has presented an excellently worked up case; one which gives us every advantage except actual examination of the patient.

The essential features, as I see them, are: A white man, 54 years old, who was in good health until two years before his admission to the hospital. Then he presented symptoms which were evidently due to pyloric ulcer, from which he recovered simply by dieting. No mention is made as to whether or not he consulted a physician at that time. He remained well for a year and then presented the same symptoms, perhaps somewhat aggravated. This time, in addition to dieting, he received some medication in the form of "powders." The symptoms cleared up and he remained well for another year. This time when the symptoms returned they were somewhat different, or at least, definitely exaggerated, and in addition profuse vomiting of blood, which is perhaps the most startling symptom he had. This could, of course, be due to extra-gastric causes; for example, gall bladder disease or some blood dyscrasia, although, as Dr. Leavell pointed out in his discussion, this is not supported by the x-ray findings or the history. Likewise, in cirrhosis of the liver we would expect to find some enlargement of the liver and none is noted. Aesophageal varix might account for the hemorrhage, but this condition is usually associated with cirrhosis of the liver and, in the presence of such definte pathology in the stomach, would seem to be a little far-fetched.

I think this man certainly had a pyloric ulcer in the beginning, but I am inclined to agree with Dr. Leavell that, towards the last there was definite evidence of malignancy. I feel that, with the active treatment he had, the number of transfusions and the large amount of blood given, if he had simply had an ulcer he would have responded better and would have been in better shape for operation. I would say that his inability to rally was caused by something more than loss of blood from an ulcer, and I am inclined to the idea of malignancy. There is a possibility that the pain described resulted from the perforation of an ulcer. If he did have a perforated ulcer it was walled off, because there is no evidence of a general peritonitis and I do not believe that a locally walled-off process would have killed him so quickly.

My diagnosis would be: Malignancy engrafted on an old peptic ulcer. I think the treatment was such as most of us would have instituted under similar circumstances and, of course, operation was indicated if the patient could have been prepared.

**George A. Hendon:** I think the belief has been pretty well established in the minds of this audience that the patient had a malignant condition involving the stomach, but regardless of whether it was malignant or not, his distresing symptoms could have been relieved in a very simple manner.

Intermittent, intravenous introduction of fluids en masse should be regarded as obselete. Where hemorrhage of the stomach is concerned, the indication for perfect physiological rest is so obvious as to become very conspicious.

In my series of twenty-one cases of gastric ulcers, I have treated eight cases of massive hemorrhage in this way with complete relief and I have come to the belief that gastro-enterostomy in the treatment of peptic ulcer is only indicated when a pyloric obstruction prevails. With a period of rest from ten to fifteen days during which time nothing goes into the stomach except water, the secretions become alkaline, the stomach goes to sleep, hemorrhage is arrested and the patient gets well. I can only say for intermittent, intravenous injections, they are unphysiological. Any fluid going into the blood vessel should be introduced at the physiological ratio between delivery and distribution which my experience seems to establish at from 200 to 300 c. c. per hour in adults. It is generally conceded that ulceration anywhere in the body tends toward recovery if the organ affected is placed at perfect rest by suspending its physiological function, unless the ulcer is syphilitic, malignant or tubercular in origin. In any event, hemorrhage is controlled in peptic ulcer by placing the upper extremity of the intestinal canal at perfect rest by the method which I have provided. Therefore, I cannot understand why one should waste time playing around with the things that are as old-fashioned as a horse and buggy or a covered wagon.

I trust that the statements I have made will be subjected to a clinical test to prove their accuracy.

## BOOK REVIEWS

LIGHT THERAPY. By Frank H. Krusen, M. D. Director of the Department of Physical Medicine, Temple University School of Medicine, Philadelphia: Foreword by John A. Kolmer, M. D., Professor of Medicine. Temple University School of Medicine. Thirty-three illustrations. Paul B. Hoeber. New York. Publishers. Price $3.50.

The subject is covered in a clear and concise manner, and the book has epitomized and clarifies the existing data concerning sight therapy. Physicians who become familiar with this text will be able to practice light therapy within the bounds of our present knowledge with ease and intelligence.

The subjects of accurate selection of therapeutic rays, their dosage, physiological effects etc., are thoroughly discussed.

EGGS. WHEAT OR MILK FREE DIETS, WITH RECIPES AND FOOD LISTS. By R. M. Balyeat, M. A., M. D., F. A. C. P., Associate Professor of Medicine and Lecturer on Diseases due to Allergy, University of Oklahoma Medical School; Director Balyeat Hay Fever and Asthma Clinic, Assisted by E. M. Buster, M. B., M. D. and Ralph Bowen, B. A., M. D. J. B. Lippincott Company, Philadelphia, Publishers. Price $2.50.

Doctors and patients alike have found it difficult in removing wheat, eggs or milk from the diet. This book gives lists of foods that wheat, egg or milk go into and assembles recipes which are wheat-free, egg-free and milk-free. It has been arranged to assist physicians and dietitians in the selection of food lists and menus for wheat, egg or milk sensitive patients and to make easier the task of those who actually prepare their diets.

It gives the role played by food in allergic diseases; asthma; hay fever; migraine; urticaria; eczema; gastro-intestinal symptoms due to food; symptoms due to food sensitizatin; vertigo; epilepsy; arthritis; pruritus; bladder irritation and methods of testing for food sensitization. Showing the types of food sensitive to patients, wheat sensitive, egg sensitive, milk sensitive and wheat and milk senitive.

Under suggested recipes for wheat, egg or milk sensitive patients those that are egg-free, wheat-free, milk-free. Recipes containing no milk or eggs; no wheat or eggs; no wheat or milk; no wheat, eggs or milk.

Chapters on body food requirements; food values; special diets; food lists; height and weight tables; and removable food diary lists covering every day for four weeks.

## COUNTY SOCIETY REPORTS

**Jefferson:** The following is the program of the Jefferson County Medical Society for October, 1933:

**October 2nd**

Endocrine Symposium.

**October 16th**

Medical—Dental Meeting.

I. T. FUGATE, President
CHARLES M. EDELEN, Secretary

**Grant:**. The Grant County Medical Society met at the office of the Health Department Wednesday evening Aug. 16, 7:30 P. M. with the following members present. N. H. Ellis, A. D. Blain, C. M. Eckler, W. J. Zinn, and C. A. Eckler. Communications were read and approved and the subject of reports of cases was entered into.

Each one present had had important cases of rare interest and very instructive to all present.

And while the number was small we all felt we had been paid well for the meeting.

The society urged as many as could to attend the state meeting which meets at Murray next month.

We would like very much to see both the delegate and alternate attend this meeting. It is by our standing together and working with our state board that our success will be achieved and the state of Kentucky kept foremost in medical adancement.

We now adjourned to meet the third Wednesday in September at the same hour.

C. A. ECKLER, Secretary.

**Clark:** At a special meeting held on August 25, 1933 with Dr. O. P. Clark, President, presiding, the following resolutions were unanimously adopted.

The Clark County Medical Society notes with the most profound regret the death of Dr. B. F. Johnson which occurred at his home Friday night at 8:40 P. M., July 14, 1933, in the 67th year of his life.

Dr. Johnson was graduated from the Hospital College of Medicine, Louisville, Ky., in 1886 and had practiced medicine in Winchester for forty-six years.

In view of his long and honorable career in this vicinity and the high esteem in which he was held by the Clark County Medical Society, be it resolved that this Society would go on record as follows:

1. That in the death of Dr. Johnson, Winchester has lost one of its most valuable, useful and leading citizens.
2. That the Clark County Medical Society, by his death, has been deprived of a member of the first rank and the medical world of one who added dignity to their profession.
3. That the members of this Society, in his home-going, have lost a fatihful friend, wise councillor and loving comrade.
4. That these resolutions be spread upon the minutes of the Society and a copy be furnished the Kentucky Medical Journal, the local press and his bereaved family.

R. H. SCOBEE, Secretary.

---

The Kentucky Conference of Social Work meets at Berea, Kentucky, on October 13 and 14, with headquarters at Boone Tavern.

A splendid program has been arranged, and all physicians interested in the social welfare of Kentucky are cordially invited to attend.

---

**Third District:** The Third District Medical Society met at the Helm Hotel, Bowling Green, Ky., at 11:30 A. M. on August 23rd.

Dr. Jno. H. Blackburn reported a case of Pemphigus.

Dr. H. M. Weeter, Louisville, read a paper on "The Benign and Malignant Breast."

Luncheon was served at the noon hour, there being about thirty doctors present.

After lunch, Dr. Louis Frank, Louisville, read a paper on "Cancer of the Cervix," and Dr. H. M. Meredith, Scottsville, read a paper on "Cancer As Seen by the General Practitioner." These papers were discussed by Dr. G. Y. Graves and Dr. Jno. H. Blackburn.

The meeting adjourned to meet in Bowling Green again in October.

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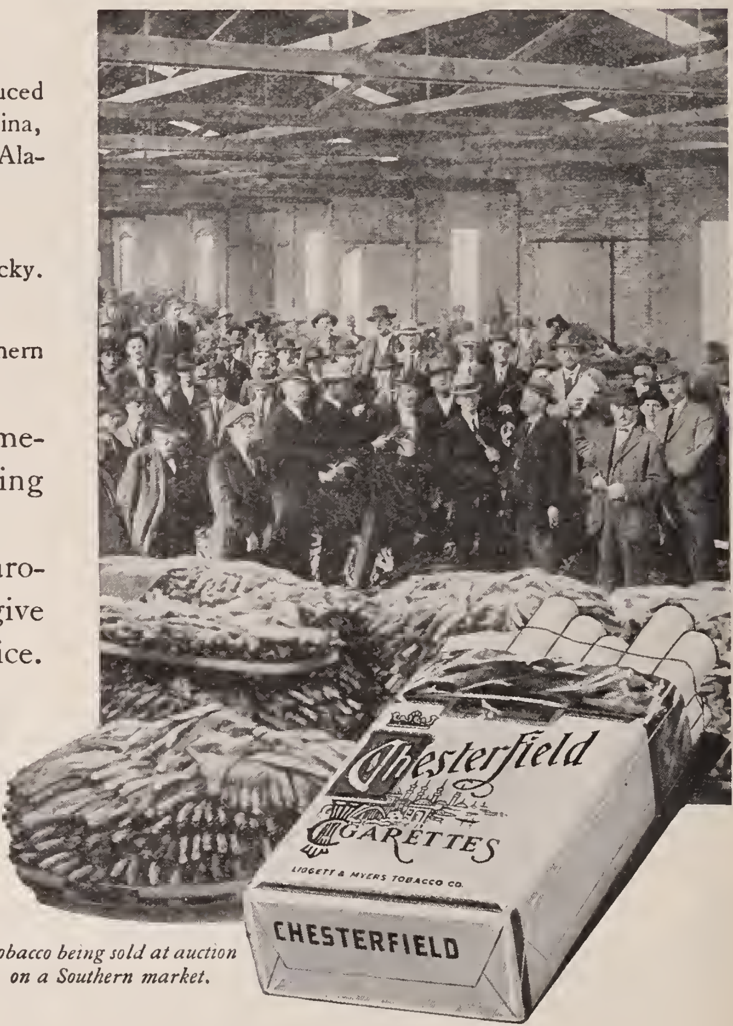

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# KENTUCKY MEDICAL JOURNAL

BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

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## THE SOUTHERN MEDICAL ASSOCIATION

With every prospect of a banner meeting, the Southern Medical Association moves on to Richmond for its next annual convention, beginning on the 14th and extending through the 17th of November.

Probably at no time in the history of the nation has solidarity of effect and thorough accord of spirit been more necessary than at this moment when the clouds of the devastating depression seem to be breaking. The physicians of the South, always alert to opportunities and obligations, can "do our part" just now in no more effective way than by bringing to one another the stimulus that flows from the companionship, from the broadening of ideas, from the actual dissemination of new thought that always mark the sessions of this great organization.

It seems fitting that this girding of the medical forces of the South for the New Day that is dawning should occur in the capital of the Old Dominion, the focal point of so many stirring events in the history of the United States. Today a metropolitan area of wide dimensions and a medical center of real note, Richmond, of a yesterday that reaches back to the dawn of English occupancy of this continent, is filled with memorials of great names and greater deeds that, along with its natural beauties, lend it a lure, a charm equaled by few other American cities. To these physical and historic embellishments it adds a warmth of hospitality that assures a geniune and winning welcome to our Association.

In behalf of the profession in this city as expressed by your host, the Richmond Academy of Medicine, we extend to the physicians of the South cordial greetings and expression of our earnest desire to have you with us during these notable sessions. General and sectional programs have been admirably arranged and the clinics and scientific exhibits will offer demonstrations of lively interest. Local committees will spare no effort to contribute to the comfort and convenience of the delegates and such guests as may accompany them. The social diversions offered by the city will be very engaging and the points of interest here and in the surrounding territory will lead you into many delightful by ways. Let us hope, then, to see you among this great host. It will be our pleasure to solve your problems of transportation, of hotel reservations, or of anything else that may be bothering you. If you have established no other contacts, the undersigned will be very gratified indeed to receive your communication and direct it into the proper channel for immediate action.

JOSEPH F. GEISINGER, M. D.
Chairman, Publicity Committee
Stuart Circle Hospital, Richmond, Va.

## AN INVITATION TO RICHMOND

If you have never been to Richmond, haven't you always wanted to come? And if you have been to Richmond, haven't you always just longed to come back? Well, this is the time to make that dreamed of trip. In addition to the lovely old landmarks of history and tradition you have seen before or read about, we are able now to visit lovely restored Williamsburg with its governor's palace and House of Burgesses standing again "with the glory that was Greece and the grandeur that was Rome." Many of the beautiful old homes have been restored and they with their gardens are enchanting. The whole atmosphere is saturated with the spirit of two centuries ago.

Only a few miles from Williamsburg is old Jamestown with its air of brooding sadness as one walks among the bits of construction which are all that remain of the efforts of those first brave men who came to Virginia.

A trip to these interesting shrines is included in the entertainment being planned by the doctors' wives of Richmond for the wives of doctors who will come to the Southern Medical Association in November. Committees have been busy with plans for weeks and a most cordial welcome awaits the Auxiliary.

## THE A. M. A. DIRECTORY

Last month an information card was sent from the headquarters of the American Medical Association to every physician in the United States and Canada. The information thus secured is to be used in the compiling of the Fifteenth Edition of the American Medical Association Directory.

This publication is one of the most important contributions of the American Medical

Association to the work of the medical profession in the United States. In it physicians are classified and classify themselves in such a way as to make it the most valuable directory published by any profession. Members of the County Societies and State Associations will find their names published in bold type and Fellows of the American Medical Association are especially indicated. This method properly makes prominent those who are taking an active part in medical organization and its resulting public service.

If any medical reader failed to receive such card, he should write to the American Medical Association, 535 North Dearborn Street, Chicago, Illinois, calling attention to the fact.

There was never a time when it was more important for every active physician to be a member of his County and State medical organizations and a Fellow of the American Medical Association.

## DR. SMITH'S ADDRESS

One of the outstanding concurrent events at the Murray meeting was the address of Doctor L. E. Smith, the Director of the Kentucky Tuberculosis Association at the First Methodist Church on Sunday evening preceding the meeting. All of the churches in Murray united for this service. Those who attended the service, which was held under the auspices of the League of Christian Physicians, which sponsored Dr. Howard A. Kelly's address in Louisville last year, were delighted with Dr. Smith's address. Almost every home in Murray was represented in the audience and every one left feeling a greater confidence in the medical profession.

The League promises to hold similar services on the Sunday preceding the meeting at Harlan next year.

## LEE C. REDMON

Few have contributed more to the luster of contemporary medicine than did Doctor Lee C. Redmon whose recent death in Lexington is mourned by all of his associates.

Limiting his practice to obstetrics, he was easily a leader in this field of practice. As a member of his County Board of Health and of the House of Delegates of the State Association, he represented for more than twenty years the highest ideals of the profession.

We extend to his family, the Fayette County Medical Society and the people of Lexington, our sympathy at their loss—and ours.

## ORIGINAL ARTICLES

## TREATMENT OF TYPHOID FEVER*

J. F. Dunn, M. D.

Arlington.

Since the advent of typhoid vaccine and the improvements in hygienic surroundings, typhoid fever has almost faded into oblivion. We have heard eminent physicians remark that they have almost forgotten how to treat this malady as they see it so seldom.

Well do we recall the day when, in the summer season, the cisterns would all "go dry" and the citizens would apply to some large pond in the neighborhood for water which was used without sterilization. We are also mindful of the day before the use of screens began when one member of the family had to use the fly brush to keep the flies off of the food while the other members of the family ate. And we can all recall our conduct before the "passing of the outhouse." Then away back when many of us graduated from the medical college, the young doctor would read a most excellent paper before his county society on "Swat the Fly," and it was then and there that his prospects for rendering service to humanity were very flattering. Then later came along our public health departments teaching the children today what we did not know yesterday about preventable diseases, until according to the 1932 bulletin of the State Board of Health, the mortality for typhoid fever has been reduced to 12.9 per thousand, which is the lowest death rate in the history of our nation.

So when we look back over our past medical history from the birth of our nation to the present day and note the various epidemics that have occurred taking their toll of thousands of our citizens, and when we note the various forms of treatment that have been tried out all along the line, many of which were, as it seems to us at present, not only useless but detrimental, the whole scene resolves itself into one long drama with some comedy interspersed.

Medical progress has almost eliminated this disease. In fact it may be said today that the incidence of typhoid fever in any community is an index of its sanitary efficiency.

The isolation of the patient, the disinfection of his excreta, and the proper disinfection of the hands and clothing are the necessary measures in destroying the bacillus at its source.

As we are all aware, typhoid fever is brought about by the inception of the typhoid bacillus, hence, the untiring efforts of the medical profession in teaching the people to screen against the flies, to build sanitary closets, to have their food and water supplies inspected, and to take the typhoid prophylaxis are responsible for the wonderful progress that has been made in eradicating this disease. Then, notwithstanding the fact that after we have exhausted all of our precautionary measures, we find that it is absolutely impossible to put to flight all of these bacilli and a case will sometimes slip up on us. This is due to the fact that there is a "Nigger in the woodpile" in the form of a typhoid carrier. How to find this fellow and what to do with him after we find him is the perplexing question of today. In this respect, the inspection of all persons employed in the handling of food and a careful follow up of all typhoid patients with strict isolation of the carriers are the essential precautions. This is where our health departments and county units come into action and we are very glad to have the opportunity of turning it over to them. Typhoid fever is a fairly long disease, said to be self limited, for which no specific medicine has as yet been discovered.

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*Read before the Kentucky State Medical Association, at Murray, September 11, 12, 13, 14, 1933.

In looking over all the late works that I have been able to procure on this subject, I find that very few drugs are even mentioned for this disease or its complications. Its treatment, therefore, resolves itself into two main headings, viz: Nursing and dieting—the treatment being of minor importance.

We fellows who do principally country practice are somewhat handicapped in this respect—due to the fact that most of our families believe in medicine and expect us to give it to them in large quantities and at frequent intervals. And it is a very difficult problem to get them to realize that a member of their family who has typhoid with all its accompanying symptoms, many of which seem to be, and are in reality, very alarming, does not need any medicine. But it becomes our ardent duty to educate them in this respect.

The picture we see as typhoid is really one of starvation and intoxication, running over a period of several weeks. Our patient is systematically poisoned. His brain and nervous system are poisoned, as well as his lymphatic system, and his spleen, his liver, his pancreas, his kidneys, and his heart. In fact, his entire metabolism is upset. We do not know what the final outcome will be, nor what complications will arise along the pathway, but we do know our patient is going to be very sick and should have the very best attention at all times by persons skilled in the handling of such cases. Unlike a case of my own which occurred about two years ago out in a poor country home where they had no screens, no nurse, no bathing alcohol, no thermometer, no icebag, nor any bed pan. I am happy to report that the patient made an uneventful recovery, and would like to add also that I was fully convinced once and for all that there is a God.

All patients should be placed in a hospital—the advantages of which are many. There you have nurses, you have dietitians, you have sanitation, you have quietude, you have quick access to the physician, and you are near the operating room should an emergency arise. And in case a blood transfusion should be needed a donor could be readily obtained. There are many other advantages too numerous to mention. But, unfortunately, the majority of our patients are neither rich enough nor poor enough to gain admission to a hospital. So it behooves us to let nature take its course to some extent and do the best we can under the existing circumstances.

If a competent nurse can not be obtained, some member of the family can be taught to handle the case in a fair manner. If I had this disease, I would much rather have a good nurse and no doctor than a good doctor and no nurse.

The patient should be put to bed in a quiet, well ventilated room, and all visitors, meddlers, and anxious inquirers absolutely and forever barred. The patient should be told as to what his trouble is and that he must cooperate if he expects to recover.

Now as to the duty of the nurse: she should be kind and considerate as well as a good judge of human nature. The patient, no matter what his age may be, is going to become as a little child, and in no other case will suggestive therapeutics work so marvelously as in this disease. She should record the temperature, pulse and respiration every four hours. She should change his position every four hours and do it with the least amount of exertion on the part of the patient. She should rub his back with alcohol regularly in order to avoid any tendency to bedsores. His mouth and teeth should be cleansed after each feeding. The amount of urine passed in 24 hours should be measured. The stools should be examined and a report made of curds, blood, or diarrhea. The patient's gown and bedclothes should be boiled immediately after removal and the excreta correctly disposed of. She should give him a complete bath each morning followed by an alcohol rub. A great deal of harm has been done by continuous bathing in order to lower the temperature. Fever is only a symptom and will take care of itself—all other things being equal. There is only one thing that I see to be accomplished by persistent bathing in order to lower the temperature temporarily 1 or 2 degrees, that is, it satisfies the family. However, I am glad to say that the medical profession has become big enough and broad minded enough that they no longer treat the family but turn their attention to the patient. It is needless to mention the many little things a trained nurse can do to alleviate the aches and pains as well as humor the whims of the patient.

Now, of all the many things that are supposed to pass down the patient's oesophagus during his long stay in bed, I am tempted to say that the most important is water. It acts as a sedative for the nervous system, it is a splendid diuretic, a good diaphoretic, an excellent antiseptic and toxic eliminator, and that is more than can be said of any other one element. It should be given abundantly, which should be moderately cold and very little if any ice water given.

We are now about to embark upon the most important mission of the whole category, the feeding process. Contrary to nature, the process of catabolism, or tearing down, far exceeds the process of anabolism, or building up so it is up to us to do our utmost to offset this great waste of human strength and energy. In order to do this, a high caloric diet is recommended. No set rule as to the kind or quantity can be laid down, if so, the nurse could handle the case and our services would not be needed. But each case is a law unto itself and has to be closely observed for any deviation from the straight and narrow path. Since the institution of the high caloric diet, the attack is cut much shorter, the patient comes out of the attack with much less emaciation and pallor as when the starvation plan was in use. Hence, his period of convalescence will be much shorter and he will be able to take his place in life much sooner.

The question might naturally arise as to what is a high caloric diet. As I understand it, a high caloric diet suitable for typhoid cases is a well balanced diet, rich in carbohydrates and proteins with the carbohydrates greatly predominating. Carbohydrates are much more easily borne in fevers than are fats. They are more easily digested and more completely absorbed. Therefore, the greatest amount of our caloric intake should be in the form of carbohydrates.

Normally a man of 150 pounds requires about 2500 calories per day, but with a high fever he requires approximately 4000 or 5000 calories per day. Then if that be the case, and we reduce his feeding to a minimum and hold it there for days and even weeks, need we try to appear surprised when our patient developes acidosis and death closes the scene? Some years ago when we kept our patient on an exclusive milk diet, in order to have given him as much as 3000 calories per day he would have had to take over two gallons of milk in the 24 hours which was preposterous. But it was only possible to get him to take about 1 quart in the 24 hours which amounted to about 700 calories. Then, was it any wonder that our patients, if they survived in spite of our starvation plan, came out looking like skin and bones as it was aptly expressed and required from six months to one year to get back on their feet?

It has been proven beyond doubt that a patient with typhoid has a little higher basal metabolism than normally, and if we increase his caloric requirements 40 or 50 per cent above normal we can practically maintain his strength and body weight throughout the attack and prevent most of the complications.

I shall not undertake to give you the caloric value of the different articles of diet, but will present a short classification which I believe is very suitable to draw from.

Realizing the fact that the digestion and assimilation in typhoid are only about 10 or 12 per cent below normal, then we should not hesitate to give our patients an abundance of the above named articles. Of course, all patients can not take the same articles nor the same amount, but they should be coaxed along. I believe the patient's preference should be taken into consideration. Ofttimes they crave certain articles of diet which would seem to us to be detrimental, but to our surprise they tolerate it very nicely.

The feeding should be done at regular intervals—every two hours through the day and twice at night unless the patient is asleep, making the main feedings at 8-12-4-8 with light feedings at the two hour intervals.

So much for the nursing and diet. We come next to the third and last step in this discourse, the medical treatment. Just here

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|---|---|---|---|
| Carbohydrates.. | Cereals<br>Potatoes<br>Toast<br>Rice | Crackers<br>Cane Sugar<br>Jams<br>Apple Sauce | Fruit Juice<br>Tomato Juice<br>Cream of Wheat |
| Proteins...... | Eggs<br>Milk<br>Malted Milk | Cream<br>Butter<br>Ice Cream | Boiled Custard<br>Broths<br>Beef Juice |
| Drinks....... | Tea, coffee, chocolate, lemonade, orange juice. | | |

I shall venture to make the assertion that any case running a regular course, with no complications, needs no medicine. When the bacillus of Eberth has once planted himself in Peyer's Patches there is no germicide nor antiseptic that will kill him while so situated. This has been proven in a number of instances wherein the stools were examined before and after the administration of germicides, showing no decrease in the number of bacilli. So far as the prevention of the absorption of the toxines during the long febrile process is concerned, nothing has been found that will suffice. Then, if we have no drugs that will kill the germ nor prevent the toxemia, what use is there in filling the patient with salol, sulphocarbolates and all kinds of antiseptics? We have treated cases with and without antiseptics and find very little if any difference in the course or termination of the disease.

The most common complication we have to face is meteorism. This is due to an error in diet and may be controlled by the application of ice to the abdomen, the insertion of the colon tube, and lessening of the cream content, as well as the entire food regime.

Vomiting is not due to an error in diet but to toxemia. The feeding, however, should be stopped for several hours and a soap sud enema given. This, as well as other forms of toxemias, is benefitted by the administration of large amounts of fluids by mouth, by the Murphy drip, subcutaneously, or intra-venously. I believe that in these toxemias, glucose given by the venoclysis method as devised by Dr. G. A. Hendon, of Louisville, would be a great benefit.

Diarrhea is usually due to an error in diet. Cream or fats should be stopped and codeine and paregoric may be given for relief.

As to hemorrhage, it is the same old story—absolute rest, stop all foods, ice to the abdomen and morphine. No attempt should be made to move the bowels until 48 hours after the hemorrhage has ceased, then only by enemas. If the hemorrhage is a severe one a blood transfusion should be done at once.

Perforation can be recognized by clinical symptoms only, such as sudden, sharp pain in the abdomen, nausea and vomiting, sweating and signs of collapse. The leucocyte count can not be depended on. The only treatment is to operate, which should be done under a local anesthetic.

Now as we have stated elsewhere in this paper, if the patient has been able to take the proper kind and the proper amount of food and has had no complications he will come out of it almost at par and, consequently, will need no building up. But in case the road has been stormy and he has met with complications along the pathway which have sapped the patient's vitality he will need some assistance in restoring him to normalcy. For this, I know of nothing better than some of the late preparations such as iradol malt, viosterol, or some of those similar preparations which are rich in vitamines and have a wonderful recuperative effect.

When our patient's health has been restored let us bear in mind that there is still another duty which we owe to the community at large. That duty is to see that he is not a carrier. Some very beautiful results in the way of handling a long drawn out case of typhoid have been spoiled in the end by neglecting this point. The patient should remain isolated, no matter how well his general condition might be, until two cultures of the stools and urine made 24 hours apart are proven to be negative.

In conclusion, let us present the following summary:

1. Careful nursing .
2. An abundance of water; and other fluids.
3. High caloric diet.
4. Little or no drugs.

## DISCUSSION

**D. L. Jones, Fulton:** In the last decade, typhoid fever has been almost unknown in most localities, due to screening, inspection of food and water supplies, and typhoid immunization. The prophylactic instruction given by the attending physician to the family in which he is treating a case of typhoid fever has played its role in reduction.

The typhoid carrier is a problem in eradication. Medicinal remedies should first be tried, before surgery. A medication that has proven of benefit in the hands of some is urotropin and acid sodium phosphate, of each ten or fifteen grains, t. i. d., and typhoid vaccine mixed has cleared up gall-bladder and renal typhoid infection. Irrigation of the renal pelvis with a dilute solution of silver nitrate has proved of value in some instances. Surgical removal of the gall-bladder is a last resort.

Feeding of the patient has made a greater change than any other phase of the treatment of typhoid fever. Instead of a liquid diet, milk and broths, a caloric value of 600 to 1000 for twenty-four hours' feeding, which is eight to fifteen calories per kilogram of body weight, for an adult of 150 pounds. Colman's diet list of a well-balanced carbohydrate, proteid and fat diet, sixty to eighty calories per kilogram of body weight; a diet for the average adult of 4000 to 5500 calories, an increase of fifteen to thirty calories per kilogram over the normal, well and working individual, allowing about fifteen to thirty calories for the catabolic excess for the fever patient, giving a modified milk like unto that for the baby; cream, 50 c. c., 100 calories; whole milk, 1500 c. c., 1000 calories; lactose, 100 grams, 400 calories; total, 1500 calories; making six feedings of 8 3-4 ounces, feeding every two or three hours with other soft foods, varying the diet if constipated or if there is a diarrhea. The patient should drink not less than two to three quarts of water in twenty-four hours, to avoid dehydration and toxemia.

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# TRAUMATIC INJURIES TO THE SPINE*

Frank P. Strickler, M. D.

Louisville.

Traumatism to the spine occurs more frequently than is generally suspected and a large number of cases are overlooked in the largest hospitals, even when the cases have been x-rayed and have under gone physical examination and observation for several days. The writer has seen four such cases in the past year. Traumatism to the spine is frequently seen in industrial pursuits, automobile, railroad and street car accidents; also in athletics and persons whose occupation forces them to lift heavy weights. Then we frequently see spine injuries in housewives who are addicted to lifting furniture far too heavy for their physical makeup.

The spine is naturally provided with elements of safety. The spine is elastic because it is composed of many joints bound together with numerous and complex ligaments. The individual vertebrae are closely interlocked and provided with intervertebral discs, which act as shock absorbers. Further elements of safety are also provided for the spine by the normal curves of the spine, three in number which really breaks the spinal column into three separate columns, each one requiring more force to produce bending than a longer curve of equal density and material. Overbending of the spine therefore usually occurs before injury takes place.

The function of the spine, of course, is to support the head and trunk, also act as a canal for the cord, in performing this function and the many movements to which the spine is subjected exposes the column in spite of its construction, muscular and ligamentous protection, to numerous injuries.

There are thirty-three vertebrae composing the spinal column. These vertebrae are divided into the true or movable vertebrae and the false or fixed vertebrae formed by union of segments in the sacrum and coccyx. The movable vertebrae are more subject to injury, due to their mobility and exposed position. These vertebrae also guard the more important nerve structures. The caliber of the spinal canal also varies in the movable vertebrae being larger in the lumbar region than in the cervical region. This fact increases the possibility of nerve tissue injury where the caliber of the canal is smaller. As previously mentioned, there are three normal curves of the spine. The cervical curve is convex extending to the second thoracic vertebrae. The thoracic curve is concave forward from the second thoracic or dorsal to the twelfth dorsal. The lumbar curve is convex anteriorly from the twelfth dorsal to the sacro-vertebral articulation. There may be also a lateral curve to the right side probably due to the fact that most persons use the right hand.

In the sacro-vertebral region we find many anomalies, especially in the fifth lumbar vertebrae. This region is also subject to severe strain and disabling injuries. Also associated with the lumbar-sacral region, we have strains occuring in the sacro-iliac joints. It is frequently very difficult to differentiate these conditions.

The anterior surfaces of the bodies of the first five cervical vertebrae can be palpated through the mouth as they form the pharyngeal wall. The posterior surface of the spinal column are formed by the spinous processes. These processes are of clinical importance as they are easily palpated. Contrary to the chiropractor's teaching these spinous processes are rarely out of their customary position in the median line. Due to the elasticity of the spine in children, spine injuries are rarely seen in children. This may also be true because children are rarely exposed to the factors which produce injuries in adults.

Fractures, dislocations and sprains or tearing of the spinal ligaments are frequently associated and accompany each other. These injuries are caused by exaggeration of any of the normal movements and are the result of direct or indirect violence. Rarely does muscular action cause a fracture although it is a factor. Indirect violence or exaggeration of the normal curves is most commonly seen. The arches are separated and the bodies of the vertebrae are compressed. In cases of direct violence the reverse is true. The displacement of the vertebrae is usually that of the upper vertebrae being driven forward on the lower. The cord is compressed between the arch of the displaced vertebrae and the body of the lower vertebrae.

Two per cent of all fractures occurring in the body are those of the spine. The lumbar region is most frequently involved, then the cervical and lastly, the dorsal region. In other words, the most flexible portions of the spine are the most frequent sites of injury and those of the upper cervical region are the most serious. Any portion of the vertebrae may be involved. Those fractures of the articular spinous processes and transverse processes which do not involve the neural canal are less serious. The above fractures accompany dislocations in the cervical region, and in the cervical region and in the lumbar region may be caused by muscular action. The bodies of vertebrae are of the same structure as the os-calcis and are built for weight bearing and shock-absorption. They are composed of cancellous bone with a thin cortical shell. The bodies suffer wedge or chip fractures, crushing fractures, split fractures, linear fractures, compression fractures. Then the lamina are occasionally fractured off of the body and spinous process.

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*Read before the Kentucky State Medical Association, at Murray, September 11, 12, 13, 14, 1933.

Fracture of vertebral bodies usually result in varying degrees of changes and diminution in the caliber of the medullary canal. This change in the caliber of the canal may result at the time of injury or later as a result of excessive callous formation. Then compression may at times be caused by a dislocation of the intervertebral discs or hemorrhage of the cord may produce serious damage.

In 1895 Kummel described a softening osteitis which appears late after a compression injury to the bodies of vertebrae, seen especially in those cases in which weight bearing of the spine has not been guarded against. In late, obscure symptoms following spine injury, it is well to remember Kummel's osteitis.

In 1854 Killian first described spondylolisthesis. This condition occurs in laborers who are lifting heavy weights and is due to one of the lower lumbar vertebrae usually the fifth, becoming displaced forward and downward. The cause of this condition is relaxation and weakness of the supporting ligaments with an increased angle of inclination of the superior articular surface of the sacrum.

Putti has described and called attention to injury and damage of the articular processes of the vertebrae and their joints seen especially in the lumbo sacral region. This condition is also due to muscular effort in many instances.

In my opinion no paper dealing with trauma of the spine would be complete without mentioning briefly derangement of the lumbo-sacral and sacro-iliac joints. Injury to these joints are frequently seen following muscular action. They may also be due to direct or indirect violence. At the lumbosacral joint, the spinal column is balanced on an inclined plane, the upper surface of the sacrum forms an angle of about 30 degrees. This weakness is in a measure compensated for by strong ligaments, heavy articular processes and a thick heavy intervertebral disc which acts as a shock absorber. Congenital variations occur so frequently in this region, however, that it is not always easy to define the normal joint.

Sacro-iliac Joint. The unusual shape of the human pelvis has resulted from the assumption of the erect attitude. The pelvis being dragged downward posteriorly by the pull of the hamstring muscles. This rotation has taken place with the hips acting as a center. This has brought the sacral articular surfaces in greater relation with the ilium, especially in the male, this surface occupies nearly four sacral segments in the lower animals, the joint surfaces are on nearly a horizontal plane. In the human, the plane is nearer perpendicular. The female joint is more primitive in type. The joint surface in the sexes also differ markedly. The female joint forms a rounded condyloid area which fits into a corresponding hollowed out surface in the sacrum. The male joint is more serrated. These irregular projections and ridges fit and interlock with corresponding pits and grooves in the sacrum. In short, the male joint is fashioned to limit motion to the minimum, while the female joint is designed to permit a fair amount of motion. At full term pregnancy the motion in this joint has been estimated by Brooke to be two and one half times the normal.

In early life the sacro-iliac joints of both male and female are fully movable, at puberty, the male joint shows loss of motion with gain in strength. Thus we have a brief outline of two very important anatomical structures in the spine. Certainly injury to these structures is very common and frequently overlooked.

Coccygodynia, pain or discomfort at the extremity of the spine especially when in the sitting position. These symptoms may be due to pelvic disease or trauma. The condition is easily diagnosed on physical examination.

There is one other condition we see frequently which might be called snap neck or automobile neck. Persons sustaining this injury are usually sitting in an automobile which for one reason or another has come to a stop. They are relaxed muscularly when suddenly their car is struck forcibly from behind. As a result of this impact, the neck is snapped. This usually results in a severe strain of the muscle, ligaments and intervertebral discs of the cervical vertebrae. Occasionally we see a fracture as a result of this injury. I have seen a number of these cases in the past few years and the recipient of such an injury suffers quite a bit of pain and discomfort. They are firmly convinced their neck is broken. Such cases should have a very careful x-ray and physical examination to rule out fracture.

Traumatic neurosis of the spine frequently seen following railroad accidents and a very common occurence in the late war, seen in men who were buried in trench or dugout caverns or men who were in close proximity to bursting shells. These cases show no definite injury to spine or cord and are predominated by a strong psychological element. They usually clear up when the legal activities accompanying such episodes are terminated.

The symptoms of spine injury are necessarily divided into those of a complex joint injury and neurological symptoms. Symptoms are further classified as sprains involving the ligaments and muscles also as skeletal injuries. These symptoms may be immediate or remote. Simple sprains of the spine are very common and usually mean that muscle fibers have been ruptured followed by small hemorrhages with the organization of scar tissue. These muscles are swollen and tender on pressure. Normal motion of the spine, flexion, extension, rotation and lateral bending are all painful and especially so when the muscles involved are put into action. There is also muscle spasm and rigidity. Motion is not actually limited but just painful. The pain is superficial. Pain from ligament injury is more deep seated and increases after delay. Pain and rigidity are present in all active and passive motion regardless of muscle groups. Muscle injury clears up in about three weeks' time. It requires from four to six weeks for ligament injuries to become quiescent. The differential diagnosis is of no great clinical importance as the treatment is similiar unless the rupture of the ligaments is serious. Skeletal lesions should be ruled out by good x-rays, taken anterior posteriorly, laterally and obliquely. Poor x-rays only get one into difficulty. Specific and focal inspection should also be ruled out of these cases. I have recently seen a sprain case treated three months without a Wassermann. This case eventually had a blood examination which was strongly positive, thereby cleared up the diagnosis.

In fracture or dislocation of the vertebrae, the first symptoms noted are severe shock. If the injury has been very extensive with serious cord involvement the patient frequently may not survive the initial shock but expires in a few hours time. In cases where the involvement is not so serious which is true of a large percentage of cases, the symptoms noted after the disappearances of shock, are pain near the site of fracture, rigidity of the spinal muscles with muscle spasm and deformity, on passing the fingers along the spinous processes a slight depression or kyphosis may be noted. Pressure in this region is also painful. There is also marked impairment of function, motion which is very dangerous in these cases should not be attempted at all. There is complete loss of normal motion. The final diagnosis is of course made by x-ray examination. This examination should be made by a competent x-ray man as spine pictures are not easily made and poor pictures frequently lead to an error in diagnosis. Pictures should be taken anterior posteriorly, laterally and obliquely. Where it is possible, stereoscopic plates should also be made and carefully studied.

Injury to the nerve structures may involve the cord proper or the nerve roots. The cord may be contused, torn and rarely completely transected. In the mild lesions there may be a transitory oedema or hemorrhages of varying sizes on the cord itself. At a later date meningeal thickening and adhesions may develop. Nerve root involvement is more frequently noted in the cervical region but is frequently overshadowed by cord injury. It produces anesthesia and palsy involving the arms.

The spinal cord ends opposite the lower border of the first lumbar vertebrae. The cord therefore is shorter than the vertebral column. So the cord segments do not correspond numerically with the vertebral spines. Chipaults' method of locating corresponding levels is a simple method to use. The segment of cord lesion is located by careful outlining sensory impairment and the distribution of flaccid paralysis. Pain and hyperesthesia of root distribution is of assistance if present. Sensory and motor symptoms are more easily demonstrated in the extremity than in the trunk.

In complete cord injury above the third cervical segment, death results almost immediately from respiratory paralysis. In survival cases of damage to the third and fourth cervical segments paralysis of the sterno mastoid, trapezius and diaphragm may be noted. Injuries to the fifth cervical segment are characterized by paralysis of all four limbs and the respiration is carried on by the diaphragm alone. With lesions at a lower level and intact fifth and sixth segments, a characteristic position of the arms is assured The arms are abducted and rotated outward at the shoulders, the elbows flexed and forearms supinated. When the twelfth dorsal and first lumbar segments are involved the lower abdominal muscles are paralyzed and the lower abdominal reflexes are lost. If the first lumbar segment is not involved, the upper limit of sensory involvement runs just below and parallel to Poupart's ligament.

The Quakensteadt test is of great value in demonstrating a complete cord block and in my opinion, is the chief indication for operative procedure when present.

The prognosis in severe cases of cord injury is bad for in spite of good nursing, these patients develop bed sores, pneumonia and urinary infections which terminate their miserable existence.

Lumbo-sacral strain is most frequently seen in stout, heavy individuals with a large protruding abdomen. They complain of backache in the region of the fifth lumbar vertebrae and first sacral vertebrae. This pain radiates down the other side of the leg into the dorsum of the foot and the sole of the foot. On point pressure, there is pain over the ilio lumbar ligaments and the spinous processes of the fourth and fifth lumbar vertebrae and the first sacral. All movements of the spine are restricted in the lumbo sacral region. Standing, lying, and sitting, the straight leg test, which consists of raising the leg on the abdomen with the knee joint extended is limited equally on both sides. Compression of the pelvis causes no symptoms.

In sacro-iliac strain, the backache is over the fourth and fifth lumbar vertebrae and the first and second sacral vertebrae. The pain radiates down the leg, especially in the posterior aspect of the thigh and in the adductor region. There is also pain in the region of the inferior sacro-iliac ligament and the sacro sciatic notch. All motion of the spine is free on standing except unilaterial side bending. Motion of the spine in the sitting position is free with the hamstrings relaxed, movements of the spine lying down are free. The straight leg test produces unilateral limitation at a small range on the affected side. Compression of the pelvis produces pain in the involved sacro-iliac joint occasionally. Another valuable test in my opinion is to have the patient step onto the seat of a chair from the floor—this produces pain in the joint involved and in many instances will be so painful that the patient will refuse to complete the test.

Sacralization or fusion of the transverse process of the fifth lumbar vertebrae to the ala of the sacrum or wing of the ilium also may be found. Trauma may produce a pseudo arthritis at these points of contact causing severe backache.

The x-ray should be used in diagnosing all of the above mentioned conditions and here again the plates should be taken in the anterior posterior, lateral and oblique positions. The entire pelvis should be included and it is also wise to have stereoscopic films as well. Many anatomical anomilies are found in the fifth lumbar vertebrae so frequently in spite of competent x-ray examination the diagnosis is made on clinical symptoms alone and in some instances the symptoms are so intimately associated that a differential diagnosis is impossible. It is not at all uncommon to have a sacro-iliac and lumbo-sacral strain occur in the same individual.

Coccygodynia is characterized by pain and discomfort in the extremity of the spine. When pelvic disease is ruled out, vaginal and rectal examination of the coccyx reveals that the coccyx is displaced or painful on manipulation. Pain is very pronounced on sitting down or when rising from the sitting position. It is estimated that in eighty per cent of these cases injury was the exciting cause.

The treatment of all traumatic spinal injuries is divided into the conservative or non-operative treatment and the operative treatment. Fortunately the conservative or non-operative treatment will improve or cure most of these injuries and it is only the exceptional case that will require an operative procedure.

The high points of non-operative treatment are absolute rest in the connected position, manipulation and traction. All sprains, fractures or fracture dislocations whether in the cervical, dorsal or lumbar region require traction. In the cervical region we use head traction with the spine in the extended position. We use the extended or hyper extension position because the deformity resulting from these injuries is most commonly flexion deformity. This position with traction tends to reduce dislocations and mal alignment of the vertebrae. This is also true of other areas of the spinal column. I usually use from 15 to 20 pounds of head traction gradually built up as the patient does not object when we add a few pounds daily. We also raise the head of the bed using the body of the patient as a counter weight. We also use a type of head traction which places no weight on the inferior maxillae as patients object strenuously to pressure in this region. The bed should also have stiff springs and a hard mattress on it. If such a bed cannot be obtained, it is an easy matter to pass broad boards between the frame of the bed and mattress. This makes a very good substitute for a fracture bed of this type. We maintain head traction or fractures and dislocations of the cervical region from eight to ten weeks, observing the amount of callous thrown out by x-rays taken every three weeks. We also put all of our cases on a high calcium diet with calcium gluconate wafers and super "D" cod liver oil. I have long since reached the point where I would not treat a bone case without these valuable remedies. These cases should all have blood Wassermann's and all points of focal infection should be cleared up. When the desired period of time has elapsed and the x-ray demonstrates sufficient callous has been thrown out, we get our patients out of bed with a leather or aluminum collar which has been properly fitted to hold the spine in extension and redistribute the weight from the spine to the head and shoulder. These cases should be under observation for about one year with x-ray check ups at regular intervals.

Fractures and dislocations in the dorsal and lumbar region are treated by putting the patient to bed on a Whitman or Bradford frame which is a gas pipe frame covered with canvas and tightly stretched, the frame being bent convexly in order that the spine be hyper extended. There are modifications of this frame that permit the hyper extension to be increased or diminished at will. These adjustable frames are more expensive than the more simple types but have a distinct advantage in that they are more adjustable. In the past few years, fracture beds have been introduced into hospitals. These beds work on the same principle as the adjustable frames. In treating fractures of the dorsal or lumbar region, traction may also be used by applying it to the pelvis, legs, head and shoulders if desired. In my opinion, these cases should be kept on a frame about eight weeks as this permits ample time for union and callous formation before assuming the upright position and weight bearing. However, these cases should always be checked by x-ray before weight bearing is permitted. When the patient comes off of his frame he should be supplied with a proper fitting brace of the Taylor or Knight back brace type, a type of brace frequently used is a modification of the old Knights brace now called the crutch spinal brace. In fractures of the dorsal or lumbar regions also the patient should be under observation for at least a year's time with frequent x-ray check ups, brace fixation, massage and proper diet, etc.

In my opinion it is rarely necessary to operate on fractured spines. Occasionally we find a case with a positive Quakenstedt indicating a complete block where laminectomy is indicated. Few laminectomies are done by the best informed men, as they all recognize the fact that permanent and irreparable damage has been done to the cord at the time of the accident. However, we occasionally see cases of pain caused by pinching the nerve roots by callus which comes on late that can be improved by eliminating the pressure. Occasionaly we see also a spine that is painful, following a fracture or dislocation if this condition cannot be controlled by a brace. It is better to do a Hibbs operation. As you all know the Hibbs operation briefly consists of stripping the spinous process, articular process, laminae and transverse processes as far as possible. Then turning down the spinous processes from above to make a firm union of bones. Some operators also reinforce this operation by taking osteoperiosteal grafts from the tibia. To my mind this is a more satisfactory operation than the Albee operation which consists of splitting the spinous process and putting a graft from the crest of the tibia into the bed prepared by splitting the spinous process. I have never seen bad results from the Hibbs operation. These operative procedures are followed by reaction frames to permit union, then braces are applied. They are placed in high calcium diet, super "D" cod liver oil, massage, physio therapy, etc. and are observed by frequent x-ray examinations for a year's time.

Lumbo-sacral and sacro-iliac strains as previously mentioned are frequently associated and at times are almost impossible to differentiate. Lumbo-sacral strains are best treated by putting the patient at absolute rest on a fracture bed or Whitman frame until acute symptoms have subsided. In lumbo-sacral strains with exaggerated lordosis, Goldthwait has called attention to the fact that these patients must be taught to flatten the lumbar spine first when lying and later while standing by contracting the abdominal and gluteal muscles. With this is combined re-education in diagphragamatic breathing. The patient must also wear a light back brace of the Knight type or a reinforced corset coming well down on the thighs and up to the short ribs. Many women find the corset is more comfortable than the brace and the corset probably stays in position better. The corset or brace should only be discarded when symptoms have subsided and a better posture has been acquired. Some of these cases, however, come to operation especially in working men who have failed to secure results from conservation treatment. In that case a Hibbs fusion of the fourth and fifth lumbar and the first and second sacral segments is done. This operation followed by a proper brace and after care gives good results.

Sacro-iliac strains are also treated by putting the patient at rest on a frame followed by a low back brace or a broad webb belt with a sacral pad. This belt, of course, is worn well below the anterior superior spines of the ilium. At times it becomes necessary to stretch both the lumbo-sacral and sacro-iliac joints under an anesthetic. This is done in patients where adhesions have developed in the joints and considerable shortening of the hamstring muscles has occurred. Following the stretching of these cases, they are put up in plaster and later followed by proper braces and postural reeducation. At times it becomes necessary to operate on sacro-iliac strains. Personally I prefer the Smith-Peterson operation which consists of turning down a flap containing the gluteal tissues with the periosteum attached cutting out a block of bone across the sacroiliac joint removing the cartilage from the surfaces, then re-inserting this block. The bone block bridges across the joint with a firm block of solid bone and immobilizes the joint. It is not necessary to follow this operation by the application of a plaster Paris spica.

Snap neck or automobile neck usually clears up in about two or three weeks. In my opinion, it is best treated by rest, physiotheraphy, especially baking with gentle massage. The elimination of infection focal and otherwise also an alkaline diet with forced fluids and proper elimination is of material aid to these patients' recovery.

Coccygodynia is treated by manipulation of the coccyx. Yoeman's advocates the injection of 80 per cent alcohol 10-200 mm. at intervals of one week into the area of greatest sensitiveness. In obstinate cases the coccyx should be removed.

In conclusion, I might state that I have endeavored to cover in as short a time as possible this very important subject. Spine injuries are frequently overlooked and neglected. Many patients are incapacitated who should obtain relief by proper treatment.

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**Surgery in Pulmonary Tuberculosis.**—Bettman poinst out that, in pulmonary tuberculosis, thoracoplasty must not of necessity be reserved until medical treatment has failed. Thoracoplasty must not be considered apart from the general sanatorium treatment of tuberculosis. It should be recognized as much a part of a routine treatment in certain instances as artificial pneumothorax, graded exercises, or any other of numerous procedures. The conventional extraplural thoracoplasty is by no means the only method of treatment. Selective collapse will undoubtedly take an important place in the surgery of tuberculosis. The author believes that the importance of phrenicectomy has been greatly overestimated. There is no such division in the treatment. It only happens that at some stages during the treatment the phthisiotherapist is the more active of the medical attendants, at other times the surgeon.

# EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS*

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During the last decade so much has been discovered in the study of tuberculosis, that the former conception of what was necessary to make an early diagnosis of this disease, must be radically modified. Only a few years ago an early case was thought to have been found when a patient gave a history of a persistent cough, slight loss of weight, fatigue, a hemorrhage possibly, a little rise in temperature in the afternoon, pulse slightly higher than normal and physical signs found of impaired resonance at the apex of one lung together with mucous rales after an expiratory cough heard above the clavicle anteriorly or above the spine of the scapula posteriorly. It is realized now that such a picture is one of an old process and one that is probably rather benign. I wish to state further that an early diagnosis, strictly speaking, is rarely made unless it is accomplished in group studies undertaken for the express purpose of discovering the early case. This being so, the general practitioner of medicine seldom sees an early case of tuberculosis.

In order to realize the truth of the above statements, it is necessary to understand what happens after the lung is first invaded by the Tubercle Bacillus. When Tubercle Bacilli are first deposited in the lung, they may lodge in any part of it but very rarely at the apex. In about three weeks a primary tubercle has formed. This tubercle is usually of microscopic size and may have the same density as lung tissue so it cannot be revealed by x-ray. No symptoms occur during this time. The tuberculin test is still negative.

While this tubercle is being formed, however, something has happened to the patient's body so that at the end of this period he has become sensitive to the tubercle bacillus. In other words, allergy has been established and the tuberculin reaction will then be positive.

What happens to the tubercle now probably depends primarily on how sensitive the individual is. If there is a low state of allergy the primary lesion may disappear, leave no trace and the tuberculin reaction may again become negative. Frequently, however, the tubercle becomes in a month or so somewhat larger and the density increases so that it is possible to detect it by x-ray. If the allergic state of the individual is high, there occurs a reaction about the primary tubercle which gives a definite shadow, small or diffuse, on x-ray examination, in the lung parenchyma. There are no symptoms at this time significant enough to bring the patient to a doctor.

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Rarely, however, when the primary tubercle is near the periphery of the lung, there is an invasion through lymphatics to the pleura and an allergic reaction may occur resulting in signs and symptoms of pleurisy with effusion. This may occur even when it is impossible to define the primary tubercle by x-ray.

As a further result of this primary infection, we see particularly in children not only the above described lung reactions but also enlarged tracheobronchial glands. These glands become tuberculous by direct communication from the primary tubercle through the lymphatics. The involvement of the tracheobronchial glands is seen much more frequently in children after first infection than in persons who have lived beyond the adolescent age before becoming infected. The probable reason for this is because of an anatomical change in the lymphatic system at about puberty.

This primary tuberculosis may occur at any age but as there are so many cases of open tuberculosis, the first infection usually occurs in early life.

The primary disease is always benign. In a few months it has run its course. There have been practically no symptoms and no physical signs. In the adult, very few if any shadows remain on x-ray examination. In children, however, the primary tubercle and tracheobronchial glands are often visible and after from two to five years may be seen to have become smaller and firmly calcified.

To diagnose Primary Tuberculosis in the early stage, then, as there are usually no symptoms and no physical signs, there are two essentials: First, the tuberculin test which will be positive about three weeks after infection by the tubercle bacillus; secondly, an x-ray made a month or two after the first invasion of the bacillus. Furthermore, the x-ray must be made with the most exacting technique, and the film must be read by one who is exceptionally well trained in interpreting these early shadows.

How difficult it is to discover this type of case is exemplified by the work of Barnard, Amberson and Loew in the study of 1000 school children between the ages of 13 and 14, made under the auspices of the Bellevue-Yorkville Health Demonstration. Many of the tuberculous children found were doubtless reinfection types and not altogether the primary cases I have been discussing. Even so, the example will be sufficient.

All of the 1000 children, presumably healthy, were given a physical examination, were tuberculin tested and x-rayed. Six hundred and seventy-three were positive reactors; 173 of these on x-ray showed pulmonary lesions while eleven cases were found among those who were negative to tuberculin.

If the children whose general health was not good had alone been x-rayed, only 25 of the 173 would have been discovered.

If those 10 per cent or more below average weight had alone been x-rayed, only 18 would have been discovered.

If only those cases who had been exposed in their homes had been x-rayed, only 8 of the 173 would have been discovered.

If those cases in which suspicious pulmonary signs were detected were alone x-rayed, no case would have been discovered.

It is readily seen, then, that family history, state of health and physical signs play little part in the diagnosis of first infection.

Although primary tuberculosis is rarely diagnosed in every day practice, it is of tremendous significance to the person infected. Allergy has almost always been established and a reinfection may easily occur which often results in the ordinary picture of tuberculosis.

J. Arthur Meyers states that "A positive tuberculin reaction indicating allergy resulting from first-infection type of tuberculosis, is a definite liability, since the destructive forms of tuberculosis do not ordinarily develop in nature in its absence. Therefore, the longer it can be postponed, the better." With this statement I do not entirely agree. Are the 673 positive reactors in the Bellevue-Yorkville demonstration liable to have destructive tuberculosis? I don't think so. A small percentage of them will undoubtedly become diseased but all of them will probably have the same liability to exposure. Many of them may have developed a strong immunity. It is my belief, however, that neither allergy nor immunity is the determining factor. Some other condition present in the body—something as yet undetermined is the deciding factor whether or not the disease will become manifested.

Henry C. Sweany suggests as follows: "Another idea that presents itself is the possibility of a changing reaction due to the influences of civilized life. May not there be a tendency to acquired resistance? And what is more plausible, may not the repeated non-specific infections bronchitis, measles, pneumonia, etc., of civilization produce a changed reaction on the part of the lymphatic apparatus? Will not the non-specific hilum lymph node changes observed in childhood, and increasing with age, change the type of tuberculous reaction that may follow?"

Eli Grimes states that "In all the multiform conditions, both intrinsic and extrinsic, under which activation occurs, there is a factor common to all, a factor still undefined."

Professor S. Lyle Cummins of Wales in a recent paper read at Toronto recognizes the undetermined factor or factors and designates the known and unknown by the term "tuberculosis constitution."

If then this "tuberculosis constitution" could be diagnosed, a given case could be watched carefully by periodic x-ray and so a reinfection or early adult disease might be diagnosed. As it is manifestly impossible to x-ray frequently all tuberculin reactors and as the unknown factor in this disease is still undetermined by which a case liable to reinfection might be recognized and watched, the general practitioner of medicine, as I said at the beginning of this paper, will rarely see an early case of any type of tuberculosis. It is at present necessary to use all methods employed in case finding in group or family studies to discover an early case. Such a case seldom goes to the doctor. It is usually weeks or months after the reinfection type of disease begins that the patient calls the physician. At that time tuberculosis is fairly well advanced and the patient is sick. Spread after spread may have occurred in a relatively short time, cavities may be already present and at times an x-ray will show a far advanced tuberculosis. Only a few years ago we thought a far advanced disease must have have been years in duration. This is far from fact as we know now from x-ray studies that frequently a far advanced tuberculosis may have been a relatively short time in becoming so, possibly only a few months.

As many times tuberculosis is so rapidly destructive, time is a very essential feature. The earlier a case is diagnosed, the easier the patient may be treated and greater is the hope of recovery. It is, therefore, very important to diagnose the disease as early as possible.

A few types of tuberculosis I will briefly discuss. In one type of disease, the x-ray alone must be relied on. The patient feels perfectly well, there are no signs or symptoms of pulmonary disease but the x-ray will reveal parenchymal involvement, usually in the subclavicular region. This is a benign type and as time goes on, with ordinary care, the lesion will become smaller and usually firmly fibrosed.

A type which may be encountered is described as acute benign tuberculosis. The onset of this disease is acute, resembling a common cold or influenza. There are few symptoms—slight cough with a lttle expectoration, malaise and often a hemorrhage. There is a slight fever. The cough and expectoration last only a few days. Tubercle bacilli may be found in the sputum during this time. Physical signs are few. The lesion may occur anywhere in the lung, and over the area involved there may be impaired resonance or dullness if the diseased area is near enough the chest wall to elicit this sign. A few fine moist rales may be heard and breath sounds are diminished. A history of recent contact aids in the diagnosis.

The x-ray findings in such a case are very much more than one would expect. A dense homogeneous shadow is presented, sometimes a whole lobe being involved.

In this type of disease the patient feels well in a week or so and the x-ray findings may be negative in six to eight weeks.

Ornstein has reported many such cases. In none of them, however, has he recorded a tuberculin test. It is, then, doubtful if these cases are reinfection types. They might easily be considered as severe primary allergic reactions which one would expect to be benign.

Acute malignant tuberculosis presents early in the disease a picture quite similar to this so-called benign type of disease. The onset is acute, resembling influenza. The patient, however, is toxic and remains sick. Fever persists. Cough is rather severe and productive. There may be a suggestive hemorrhage. Tubercle bacilli are found in the sputum, often they are readily found although in some of my cases several specimens of sputa have had to be examined before they were demonstrated.

Physical examination in some cases show no abnormal signs in the chest; in others, if the lesion is near the surface, there is impaired resonance, diminished breath sounds and a few rather coarse rales. As the lesion may occur anywhere in the lung, these signs have no definite location.

The x-ray shows a homogeneous shadow similar to the benign lesion but as the disease rapidly progresses, cavity formation may appear in a few weeks.

As this disease is so destructive, it must be diagnosed at the earliest possible moment so that collapse therapy may be instituted before too much damage has been done.

Every case of influenza, then, that doesn't rapidly subside should be x-rayed and the sputa of such cases should be examined for tubercle bacilli.

The ordinary chronic type of tuberculosis is rarely discovered early except in group studies. Such a patient usually feels well and sees no reason why he should go to a doctor. There might be present occasionally a feeling of below par—a slight nervousness; possibly some fatigue. There is no cough, no expectoration although there may be noticed a little tickling in the throat. In other words the symptoms are very indefinite and not at all significant. Tubercle bacilli are not found in the sputum.

Physical signs in the chest show nothing abnormal in the early stage of the disease. As the disease progresses, however, there may be elicited harsh breathing and a few post tussal mucous rales over the affected area. As this area is frequently opposite the second or third interspace, one can readily see why the rales even this late in the disease are not heard above the clavicle or above the spine of the scapula. The x-ray is a most important aid in diagnosing the disease at this stage. The slight mottling may be found anywhere in the lung but I think it safe to say that it is most frequently seen in the subclavicular region at about the second interspace.

The disease seems to travel upwards from this site and so finally involves the apex. At times regression may occur at the original site, so finally the signs and symptoms become present which we used to be taught were the early ones of tuberculosis—the signs and symptoms spoken of in my first paragraph.

If, on the other hand, the disease progresses, it may do so slowly or rapidly, so that there may be few symptoms or many—from the single symptom, fatigue, to the usual well known group that suggests Active Pulmonary Tuberculosis.

If the disease progresses slowly, there will be relatively few physical signs—slight dullness and mucous rales immediately following cough elicted over the upper part of one lung are the significant ones. The x-ray will confirm the diagnosis. Tubercle bacilli may or may not be found.

The disease, however, may spread rather rapidly, either by bronchogenic or hematogenous spread, by endogenous or exogenous reinfection, so that in a relatively short time large areas of the lungs become diseased. When this occurs the physical signs are abundant and well known. Sputum will probably contain tubercle bacilli and the x-ray will often reveal much more involvement than expected.

The signs and symptoms of these different types of disease are those which may appear only a few months after reinfection has taken place and in a great many instances if a diagnosis is made even this late the patient may recover if prompt treatment including collapse therapy is instituted.

In mentioning signs and symptoms I have digressed somewhat from the subject of this paper, but in conclusion allow me to summarize the procedure necessary at the present time to discover an early case of tuberculosis. The harmless tuberculin test must be given in early child life and repeated yearly, or every six months, until a positive reaction is obtained. The x-ray must then be employed which will often disclose the results of primary infection. Thereafter an x-ray should be taken at frequent intervals to determine whether or not reinfection has already occurred or whether the process is benign. If benign, an x-ray should then be taken at least every year in order to discover early a reinfection or adult type of disease.

The diagnosis of early tuberculosis is purely a public health problem and one which is of course tremendously important for the welfare of our communities. Unfortunately the legislatures of this State have never seen fit to appropriate any money for such a program.

## PRIMARY CARCINOMA OF THE LUNG*

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The ordinary radiological picture of metastatic carcinoma of the lungs has long been familiar to all of us, because of the ease with which most metastatic tumors are seen in the lungs, and because of the frequency of their occurrence. Until recent years, primary carcinoma of the lung has been thought of as an easily demonstrated tumor similar to a single metastasis, either in the parenchyma or projecting into it from the hilum area. Improved diagnostic methods, chiefly the bronchoscopic examination, have made possible earlier recognition of many primary carcinomas of the lung. During the same time radiologists have learned that there is no single typical picture of primary cancer, and that these tumors present protean manifestations, depending on the location of the lesion and the stage of development.

A few carcinomas of the lung arise in the alveolar epithelium, producing symptoms only late in the course of the disease. The remainder, comprising over 85 per cent of these tumors, arise in the bronchial mucous membrane, either in the lining epithelium or the mucous glands. Tumors in the larger bronchi produce early symptoms, usually cough, dyspnoea, and hemoptysis. Because such symptoms should bring patients to the radiologist before the disease is far advanced, he must be on the alert to recognize the earliest x-ray changes which may suggest a tumor of the lung.

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The tumor may be of sufficient size to be easily recognized as such, making a correct diagnosis relatively simple. When the tumor itself is not demonstrable, in the radiograph, there is fortunately one pathological change which often gives a clue to the diagnosis. Bronchial obstruction produces atelectasis below the point of obstruction. This atelectasis is shown radiographically by increased density in the lung, and by displacement of the mediastinal structures toward the affected side. Evidence of atelectasis is almost a constant finding in primary carcinoma of the bronchus, and when found, it should always suggest this diagnosis unless there is some other obvious explanation for the bronchial obstruction.

Late in the course of this discease there are two frequent complications which may hopelessly confuse the radiographic findings. The first of these is infection in the lung below the tumor. When this occurs, the chronic inflammatory lesions are simulated, and differentiation by the x-ray examination alone may be impossible. Inflammatory changes of long standing produce fibrosis, which may also pull the mediastinal structures toward the involved side. However, mediastinal displacement in this direction should suggest that the inflammatory changes are a secondary complication. A carefully taken history should provide satisfactory evidence for differentiation in this type of case.

An extensive transudate in the pleural cavity is the other most common complication in the study of pulmonary malignancy. The fluid may obliterate all detail on the involved side of the chest. In addition, it may shift the mediastinum toward the opposite side, so that all evidence of atelectasis is lost. Aspiration of the fluid, with or without a partial pneumothorax, may make it possible to obtain films that will reveal the primary pathology.

With these limitations affecting the radiographic diagnosis, a bronchoscopic examination must be included when a tumor of the bronchus is suspected. In many cases this examination will reveal the presence of a tumor, and permit a biopsy for an accurate determination of the type of the neoplasm. However, only a small portion of the bronchial tree is accessible to the bronchoscope, so that this procedure has distinct limitations. Tumors in the upper lobes of the lungs may sometimes be diagnosed by the removal of small fragments of tissue with an aspirating needle. The tissue is, of course, not sufficient for extensive study, but may make possible a definite diagnosis that can be obtained in no other way.

Pulmonary metastases from an obscure primary malignancy can be very difficult to differentiate from a primary cancer. Localized metastases in the hilum gland or a single metastatic tumor in the parenchyma cannot be identified as such unless the source of the metastases is known. These secondary tumors also may cause atelectasis by pressure on a bronchus, further simulating primary cancer of the bronchus. As the latter lesions often metastasize throughout the lungs, the presence of multiple tumors is not always a reliable point of differentiation.

The primary mediastinal tumors, almost always originating in lymphoid tissue, may simulate pulmonary neoplasms if the superficial lymph nodes are not also involved. As a rule, these tumors become quite large before they produce much bronchial obstruction. They are very sensitive to radiation, responding rapidly to moderate doses of x-ray, so that the correct diagnosis is established soon after a course of x-ray therapy is begun.

The treatment of cancer of the lung also is limited to radiation. The small intrabronchial tumors which are accessible to the bronchoscope should have radon seeds inserted directly into the neoplasm, followed by an extensive course of high voltage x-ray therapy. The remainder can be treated only with external radiation. The prognosis is, of course, extremely bad, but a small percentage of lung carcinomas are sensitive to radiation. Some degree of palliation may be achieved, and a few apparent cures have been reported.

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**Tuberculous Infection of Uterine Endometriosis.**—Stewart reports a case of tuberculosis in association with endometroisis uteri. The case is of particular interest in that there was a discrete nodule of adenomyoma as well as a general diffuse endometriosis, and that the two lesions were the site of active tuberculosis. The adnexa were not examined microscopically. Only those of one side were removed at the operation and they appeared to be normal on macroscopic examination, while the tuberculous lesion of the uterus was unsuspected until the specimen had been submitted to microscopic examination. In the clinical history there was no indication of the time of infection. As often happens, the symptoms had apparently no reference to the tuberculosis. Pain associated with and between menstruation was the only symptom so far as the patient could recall.

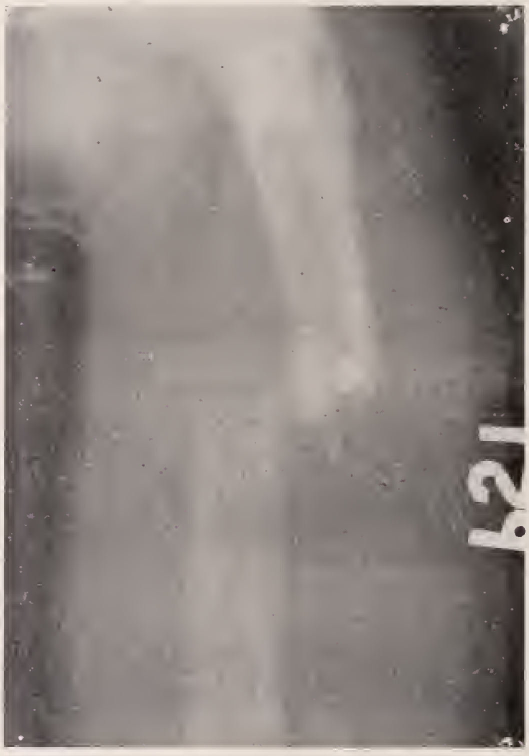
# FRACTURE OF THE HUMERUS TREATED WITH DR. HENDON'S BONE KEY. CASE REPORT

W. B. Atkinson, M. D.

Campbellsville.

B. M., Male, Age 24. On May 26th, 1933, this boy was driving an automobile which ran into a truck. He was thrown out and the left humerus was fractured four inches above the elbow joint. The lower fragment was displaced, upward and backward. The arm was splinted with traction on the lower fragment.

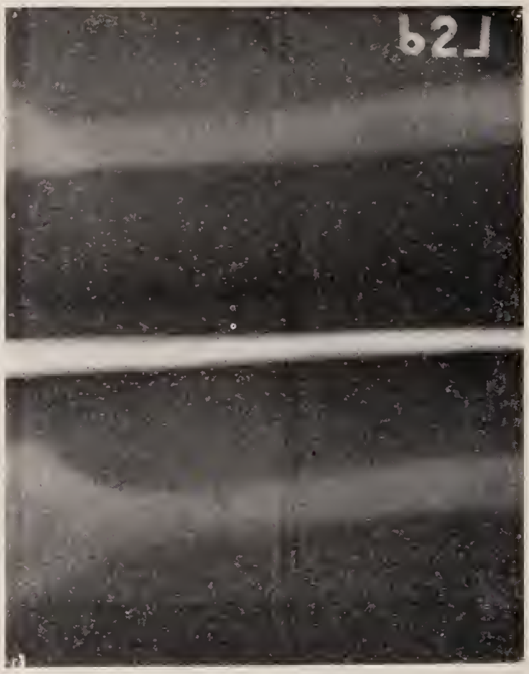
The fracture was redressed on June 3rd at which time considerable deformity persisted. The shorting was overcome, but the backward displacement continued. Three attempts were made to bring the fragments into line. Reduction was easy, but the bone would slip each time before a dressing could be applied. Later, at operation, this was found to be caused by a piece of muscle, the size of a thumb, wedged between the ends of the broken bone. An x-ray taken at this time shows the deformity present.



Accident May 26. X-Ray June 3

On June 8th a bone key was placed in the medullary canal, according to the method outlined by Dr. Hendon. An incision 5½ inches ng was made in the skin, the muscles divid- and the bone exposed. The fragments were d brought together over the bone key without trouble. Two cat gut stitches were placed in the muscle, and the skin closed with the same material. A sterile dressing was applied, and the only support was a sling for the forearm.

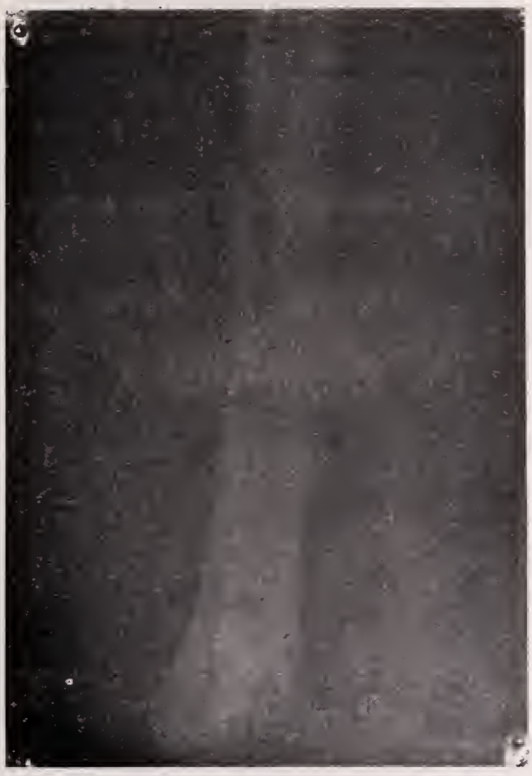
Considerable swelling followed and the wound exuded bloody serum. On the third day, the patient complained of pain, which was found to be caused by the dried exudate on the dressing pulling the hairs on the arm. After the second dressing, pain became a minor consideration. At no time after the operation was the pulse or temperature elevated.



Operation June 8. X-Ray June 22

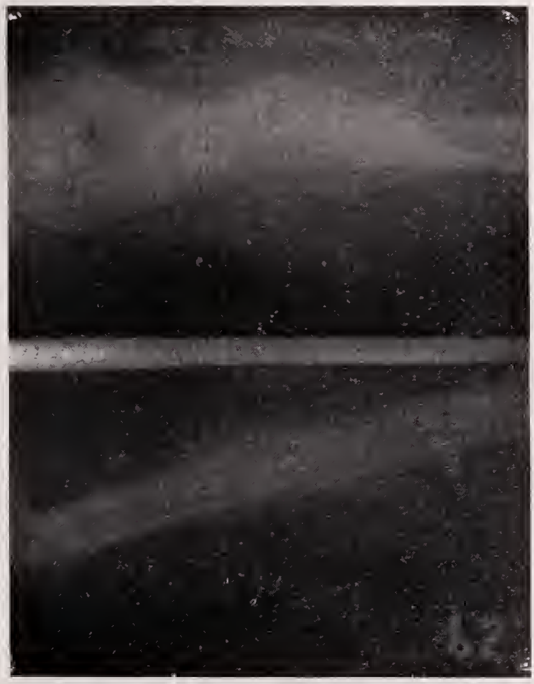
On June 22nd, fourteen days after the operation, a second x-ray was taken. This shows the bone in good position, with callus running 2½ inches along the bone and 3/4 inch wide at the widest part. The skin was healed except for one small place. Passive motion was begun.

By July 10th the skin was healed and required no dressing. The patient could use the arm to pick blackberries. On July 12th he was in a second accident, in which the car turned over twice. The arm was injured and became very sore, but no crepitus or deformity could be found on examination. An



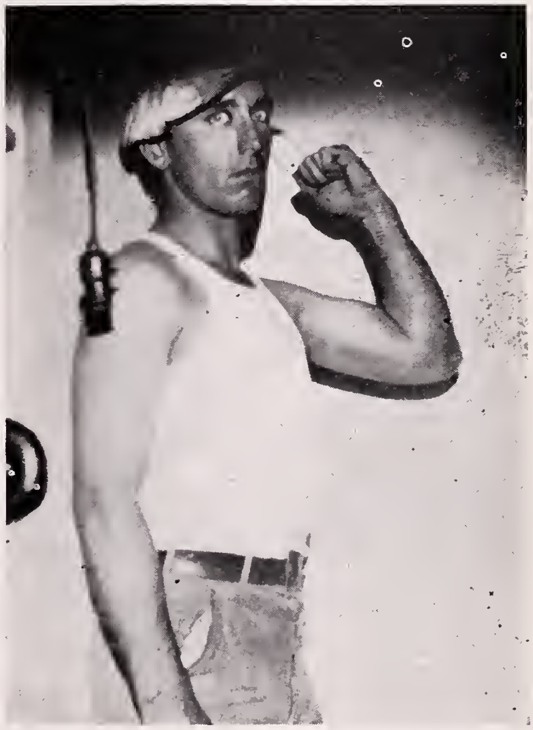
Second Accident July 12. X-Ray July 15

x-ray on July 15th showed a splinter of bone two inches long broken off the upper fragment, but the position of the fracture and key unchanged.

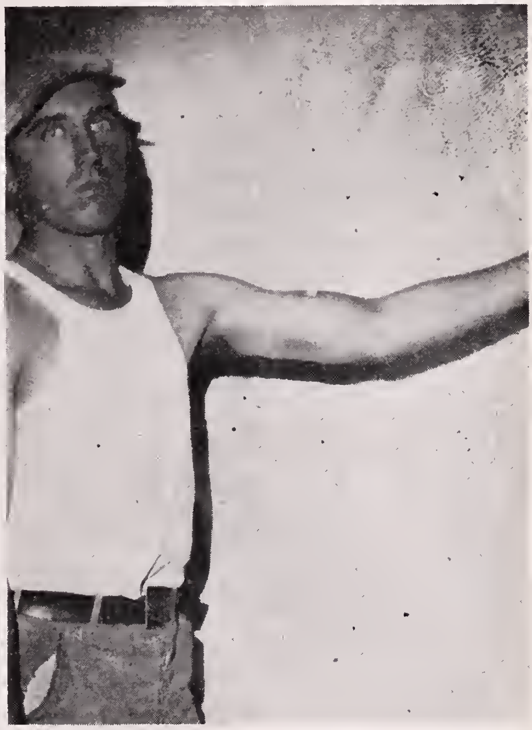


Final X-Ray and Photographs August 4

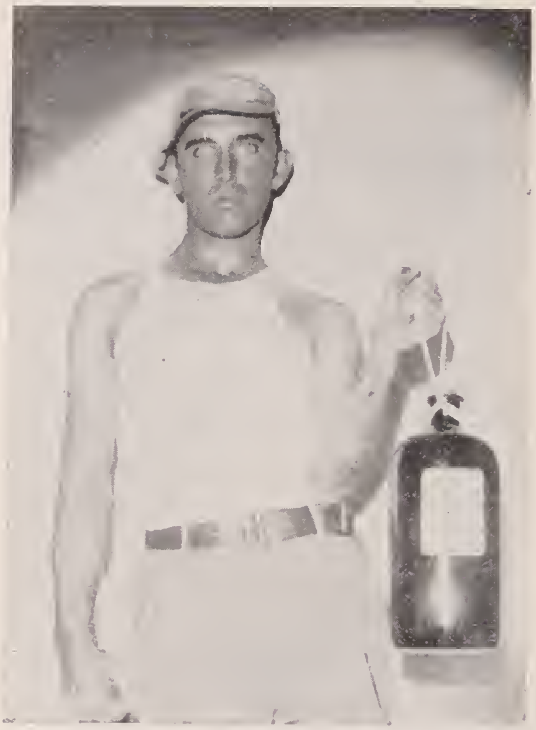
On August 4th x-ray examination showed advanced healing of the fracture with abundant callus formation. Photographs taken



First Accident May 26, 1933. Bone Key Inserted June 8.
Second Accident July 12. Photographs August 4.



First Accident May 26, 1933. Bone Key Inserted June 8.
Second Accident July 12. Photographs August 4.



First Accident May 26, 1933. Bone Key Inserted June 8. Second Accident July 12. Photographs August 4

the same day, seventy days after the first accident, fifty-seven days after the operation, and twenty-three days after the second accident, show an almost complete range of motion of the injured arm and the ability to bear weight of 12 pounds.

**Anatomic Lesions from Salyrgan.**—Rosenthal states that, although the impression of the lesser toxicity of salyrgan is probably justified, he presents a report that concerns a patient with congestive heart failure who received this mercurial diuretic shortly before death and who showed definite anatomic signs of mercurialism at necropsy. Since only a small quantity of salyrgan was given, the author's patient apparently possessed an increased susceptibility to the drug, a suggestion supported by the evidence found by Andrews in his case. In view of the increasingly widespread use of salyrgan and the numerous favorable reports from experimental and clinical studies of its action, this case is of interest, since it supports the doubt held by some authors as to the absolute harmlessness of the drug by the actual demonstration in man of structural lesions due to the presence of mercury in the tissues.

## SYMPOSIUM ON FRACTURES

## FRACTURES OF THE LOWER END OF THE HUMERUS, DIAGNOSIS AND EARLY TREATMENT*

I. A. ARNOLD, M. D.
Louisville.

In the discussion of this subject I will touch on only the most salient points as the ten minutes allotted me is not sufficient to go into detail.

First, in making a diagnosis of a fracture of the lower end of the humerus it is necessary to have a fairly accurate knowledge of the normal anatomical relations of the anatomy of this region which I will not have time to discuss; also the different types of fractures which we may encounter. First, the supercondylar fracture, which is usually transverse or maybe oblique, is rarely complicated or if so, it is more often with the vessels and nerves rather than the joint. In this fracture the deformity is usually more marked than in other fractures of the lower end of the humerus. The lower fragment is displaced backward and upward and is often rotated outward or inward. The upper fragment is forward and downward and produces the most severe trauma to the blood supply of the forearm and aside from the tight bandage and splints it is one of the most frequent causes of myositis (or Volkmann's contracture). For this reason one should be very careful in ascertaining the extent of the injury to the blood or nerve supply to the forearm. This fracture must be differentiated from a backward dislocation at the elbow joint and can be done if you bear in mind the relation of the external and internal condyles. In a fracture they are carried backward, while in dislocation they remain in a normal position and the olecranon process of the ulna can be felt projecting considerably behind that of the normal relation, although quite often we have a fracture in conjunction with the dislocation. If this fracture is seen soon enough before undue pressure has caused damage to the soft structures and is properly reduced the results are usually good. A T-shaped fracture is a supercondylar fracture with a line running from above the fracture line, between the condyles, through the olecranon fossa into the joint. This fracture has the same displacement as the supercondylar fracture and as a rule, with the addition of the separation of the condyles which make the joint wider, each condyle will move independently of the other upon manipulation. This fracture usually causes considerable extravasation of fluid in and about the joint tissue; also it frequently involves the big nerves and vessels as does the supercondylar fracture. It is not difficult to reduce but is very difficult to hold in position and quite often open operation has to be performed in order to hold the fragments together. The end results as to deformity are good, as to function they are often bad, that is complete extension and flexion can not be obtained for several months due to the deposit of callus in the olecranon fossa. This callus is gradually absorbed or worn away so that the coronoid and olecranon processes are fitted into the normal fossa. Again you may have complete ankylosis which will be dealt with under late treatment.

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*Read before the Jefferson County Medical Society.

Fracture of the condyles: These fractures involve both the internal and external condyles and are always complicated with the joint. The fracture of the internal condyle is the most frequent. The condyle is misplaced upward and inward or may be upward or backward. The most characteristic deformity of this fracture is a curving inward of the forearm and a complete loss of the carrying angle. Aside from this deformity one may grasp the suspected fractured condyle and both crepitation and abnormal mobility is easily obtained. In the external condyle you have the opposite deformity, that is the carrying angle is increased upon extension of the forearm. The same is true in manipulation of the external condyle as in a fracture of the internal.

Fractures of the trochlear surface: This term does not mean the entire articular surface of the lower end of the humerus; however, I will use it as such. It is usually caused by direct trauma and may involve the entire articular surface, that is both the trochlear and the articular surface for the head of the radius or it may be only partial or a small piece chipped off. This fracture is the most difficult to differentiate from a backward dislocation, as the articular surface will be carried forward or backward and the condyles remain in normal relation to the shaft of the humerus. Crepitation is always present on motion. If the fragments are carried forward you can not flex the arm beyond the right angle as this interferes with flexion the same as a rock in a hinge. If it is carried backward you have practically the same position as in a backward dislocation but there is more motion and less rigidity than in a dislocation.

Treatment: These fractures are reduced by traction, extension and flexion according to the displacement but the actual replacing of the fragments into position is done by the combination of these movements with molding and manipulation directly over the piece of bone. If there is a small piece of the trochlear articular surface broken off and misplaced so that it interferes with function it is practically impossible to replace this small fragment and the thing to do is to remove the fragments. This done under the proper aseptic precautions there is little danger of infection and the function will be practically normal.

Fracture of the epicondyles: These are quite common and are not infrequently overlooked. The internal epicondyles are more prominent and are said to be the most frequently fractured. In my experience I have seen as many external as internal. In either epicondyle there is marked interference either with pronation or supination according to which one is boken. The fracture may be complete with the epicondyle pulled downward and inward or if it is the inner condyle it is pulled downward and outward. If incomplete, the epicondyle may remain in situ being held by the ligaments. The symptoms are pain upon pressure over the epicondyle also upon supination and pronation, as a rule but not always crepitation. If the epicondyle is completely detached it can be returned and held in position only by an open operation sutured with chromic cat gut or Kangaroo tendon. If not completely detached the forearm is put in Jones position which takes the strain off the fractured parts.

Whenever you are called upon to treat an injury around the elbow or suspected fracture, put the injured part at as nearly complete rest as possible until an x-ray picture is taken. It is not so difficult to make a diagnosis of a fracture but it is very important to know exactly what type of fracture you have and the exact position of the fragments. Often you have a fracture at the lower end of the humerus without any deformity or displacement of the fragments at all, but in your attempt to make a diagnosis you ofttimes misplace the bones which were in perfect apposition. An x-ray picture should be made before and after reduction. Let this be an infallible rule.

In the above classification of fracture I included only the simple and complicated fractures but you may have a compound, comminuted, multiple, complicated in either of the fractures or a combination of all of them. First in importance is diagnosis. Second, the unnecessary meddling and manipulation before resorting to x-ray. Third, the proper reduction with as little trauma as possible. Fourth, fixation and treatment. If these four points are adhered to religiously, there will be very little after treatment in the simple fracture. Reduction is accomplished by traction and manipulation and should be done under an anesthetic in the majority of cases.

Fixation: There are numerous appliances such as splints of different angles and material to hold these fractures in position but in the simple uncomplicated fractures I use a modified Jones position which is held in position by adhesive plaster and a bandage. The reason I say modified Jones position is Jones position, *per se*, is not applicable in all cases and may produce bad results. A forced Jones position will pull the lower fragment too far anteriorly and if there is much swelling or edema around the elbow it will naturally interfere with the circulation to the forearm. And again if sufficient flexion is not obtained the lower fragment will revert to a posterior displacement. Flex the forearm on the arm to such degree that the pressure anteriorly will equalize the traction of the muscles posteriorly. This is easily determined by the picture which is taken after the reduction and before permanent fixation is applied. In some of the complicated fractures such as the T-shaped and occasionally that of a condyle you may have to resort to an open operation.

In making a diagnosis of a fracture of the lower end of the humerus we must keep in mind the normal anatomical points and any deviation therefrom such as deformity, abnormal mobility, swelling, crepitation, and ecchymosis especially at some distance from the site of the injury, that is discoloration up around the shoulder or down the forearm to which there was no direct trauma, is almost pathognomonic sign of a fracture. You may find all of these signs, yet either one is of sufficient importance to warrant an x-ray examination and I want to say again that the proper diagnosis and proper reduction and the first treatment usually determines the end results.

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**Skin Testing in Asthma and Hay Fever.**—O'Keefe and Burgin state that, in children with hay fever, the cutaneous or scratch method gave a high proportion (91 per cent) of positive reactions. The intradermal test is only slightly superior to the scracth test. In children with asthama, however, scratch tests showed a low proportion (30 per cent) of positive results. The intradermal test brings the proportion of positive reactions much higher (87 per cent). The scratch test is reliable in the hay fever of children, but in the asthma of children it should be followed by the intradermal test in all cases in which the scratch test is negative.

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# COMPLICATIONS OF FRACTURES OF THE LOWER END OF THE HUMERUS CAUSES AND TREATMENT*

W. Barnett Owen, M. D.

Louisville.

Fractures of the lower end of the humerus should always be regarded as serious injuries and, unless carefully analyzed and efficiently treated, are very likely to result in a marked disturbance of function of the elbow joint.

The younger the patient, the better the chance of complete function, for nature is very kind in reforming the bone to suit the need of the particular part. The common complications of fractures of the lower end of the humerus are:

I. Excess callous formation
II. Malunion of fragments with loss of "carrying angle"
III. Traumatic myositis ossificans
IV. Peripheral nerve or blood vessel injury
V. Volkmann's Contracture
VI. Compound fractures, with infection
VII. Ankylosis

Careful x-ray examinations in the Anterior Posterior and Lateral positions of the well arm, as well as the injured arm. should be made at the time of the injury. Particularly is this true of children as there is often a cartilaginous, or epiphyseal injury that is overlooked and may lead to much disability later on.

I. Excess Callous Formation: Probably the most common complication that causes disability is excess callous within or near the elbow joint. The more accurate the anatomical reposition of the fragments, the less callus is thrown out, and consequently the better the ultimate function. A small amount of excess callus is usually absorbed or worn away by functional use, but if disability persists from this cause for two to three months, the callus should be removed by open operation.

II. The Malunion Fragments: The elbow joint is a complicated structure and to properly replace the broken fragments of the humerus one should have a complete knowledge of the anatomy of the structure and their relations. The transverse axis of the elbow joint is not truly horizontal but is deviated so that the forearm, when extended on the arm, forms an angle of one hundred sixty-five degrees, known as the "carrying angle." Frequently in fractures, particularly the internal condyle, this angle is lost by displacement of the small fragment upward and a so-called "Gun-stock" deformity results. When this occurs an osteotomy of the humerus should be done and the proper angle restored. The results are usually excellent.

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*Read before the Jefferson County Medical Society.

III. Traumatic Myositis Ossificans: This is a condition in which an osseous mass forms in one of the muscles about the elbow joint, usually the brachialis anticus. It is thought that it is frequently due to a portion of the periosteum containing osteo-genic cells being stripped up and leading to the formation of bone in the muscle tissue, but bone forming substance may be found anywhere that connective tissue is present. The bony mass is usually more or less absorbed ultimately, but should disability persist, surgical removal is advisable.

IV. Peripheral Nerve or Blood Vessel Injury: These complications are particularly apt to occur in cases of violent trauma or where there is much displacement of the fragments. A careful examination at the time of the injury should be made to determine whether there is any nerve involvement. The ulnar nerve is the most commonly involved in fractures of the lower end of the humerus. The nerve injury may be primary, occurring at the time of fracture, or may be secondary, from injury from excess callus or displaced fragment. Also, there may be delayed or late nerve involvement coming on years after the injury. In cases of definite blood vessel injury with marked swelling the arm should be placed in overhead traction and surrounded by ice bags for several days until the hemorrhage is at least partly absorbed and circulation re-established. In severe cases incision may be necessary to reduce the intrinsic pressure.

V. Volkmann's Contracture:

VI. Compound Fractures With Infection: All compound fractures are potentially infected and should be treated as such. Prevention is the best treatment. All cases should be given antitetanic serum, and in some instances combined with Bacillus-Welchii. The wound should be thoroughly debrided of devitalized tissue and ether, alcohol and metaphen, or other antiseptics applied. If practicable the fracture should be reduced and plaster splints applied, using vaseline gauze for the wounds and leaving them open sufficient for adequate drainage. If infection of consequence develops, the arm should be put up in traction and continuous hot, wet dressings applied. If the infection spreads, incisions and drains may be necessary. The prognosis as to ultimate function is naturally much worse when infection complicates the injury.

VII. Ankylosis: When ankylosis is probable, the position most favorable for use should be borne in mind, which is flexion little less than right angle and supination of the forearm. One's occupation is a factor also to be considered. Arthroplasty: The elbow is the most favorable joint to mobilize. Ankylosis of traumatic origin offers the best results from arthroplasty. Between twenty and forty years of age is the most favorable time to operate. Mobilizing operations should not be considered in the presence of active pathology, nor should they be considered for at least two years after the infection has subsided.

Physiotherapy should be employed following every fracture, particularly of the intra-articular type, in the following order, heat, massage—passive and active motion, but never in any case beyond the point of pain.

# VOLKMANN'S CONTRACTURE, ITS CAUSES AND TREATMENT*

Harry Goldberg, M. D.

Louisville.

In 1875 R. Volkmann described a contracture occurring in the forearm and hand, which he ascribed to constricting bandages or splints applied to fractures about the elbow joint. The condition has since been generally known as Volkmann's ischemic contracture, or better, as Ischemic Myositis, as the under-lying pathology is essentially that of an interstitial myositis.

The condition is the result of circulatory disturbances, subsequent either to the fracture itself, or to the constricting bandages applied later. It results most frequently from tight bandaging in the treatment of fractures of the elbow and forearm region, but it may also be seen after ligation, rupture, and contusion of large vessels, or from the compression of an esmarch bandage. The condition occasionally follows infection of the forearm, disease of the circulatory system, (embolus, thrombus), and hemophilia. During the stage of onset, the extremity involved gradually becomes swollen, intensely painful, and cold. There is usually partial or complete obliteration of the peripheral pulse with some disturbance of sensation. As the condition progresses, the forearm muscles become hard, indurated, and contracted. The muscles take on a board-like feel that is quite characteristic of this condition. The skin may be covered with blebs, and there may be areas of pressure necrosis in severe cases. This is followed by the development of marked contractures of the wrist as well as the fingers, and in the severe cases the ultimate formation of a claw-hand deformity. The deformity develops in a typical sequence. The contracture appears first as a flexion deformity of the wrist, shortly afterwards or simultaneous with it, flexion deformity of the fingers develops in the mid and end phalangeal joints. Lastly hyperextension appears at the metacarpo-phalangeal joints, completing the claw-hand deformity. The flexion deformity of the wrist is extreme in severe cases, and from the view point ot muscle mechanics has a powerful influence upon the development of the claw-hand deformity. This is due to the tension upon the extensor muscles of the fingers from the hyperflexion of the wrist, so that hyper-extension of the metacarpo-phalangeal joints is unavoidable, even though the extensor muscles are usually not involved in the myositic changes. The elbow is usually fixed in flexion, with pronation of the forearm.

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*Read before the Jefferson County Medical Society.

To understand the condition one must consider how muscles of the forearm react to interference with their blood supply in various degrees. It is known that muscle deprived of its oxygen supply will finally disintegrate and coagulate. Brooks in an experimental study of the etiology of Volkmann's contracture, found that if the vein of the extremity was obstructed in a dog, the artery being preserved, typical ischemic symptoms developed, such as hemorrhage, edema, degeneration, inflammation, fibrosis, contracture, and loss of power of the muscle. Brooks believes that with the occluded vein and open artery, the pressure in the capillary system must rise above the diastolic pressure. This pressure probably results in more or less destruction of the capillary system, which interferes with the nutrition of the tissues, and degeneration or necrosis results.

Later, Jepson in a series of experiments on dogs, attempted to produce ischemic contracture by the application of casts, splints, and bandages, but could only bring about a temporary deformity. He was only able to produce a true and persistent ischemic contracture when the vein in the extremity had been previously ligated, thus confirming Brook's work. He also investigated the effect of the early relief of the subfascial tension in his cases of artificially produced ischemic contractures. He conclusively showed that by opening the wound and evacuating the blood and serum after some hours that the onset of ischemic contracture could be prevented. These experimental findings support the contention that the hematoma found within the limits of the antecubital fossa in supracondylar fractures, is capable of producing a venous block quite apart from bony displacement special position of the elbow, or the application of a splint or bandage. These experiments also tend to bring out the fact that Volkmann's contracture is due to a combination of events, most important of which is the acute obstruction of the venous flow, extravasation of blood and serum, and swelling of the soft structures causing pressure on the vessels and nerves.

As to the frequency of peripheral nerve involvement, in Volkmann's contracture, J. J. Thomas found that it occurred in 60 per cent of his series of cases. Complete loss of nerve conduction is rare, yet some pressure on the nerves is present, since they become involved in the scar tissue and no doubt influence the course of the contractors. The sensory disturbances are most noticeable in the area of distribution of the ulnar nerve, but the median nerve may also be involved.

### TREATMENT

Prophylactic measures demand that we avoid circular compression in fractures about the elbow region, reduce dislocations, and displaced bones, and critically watch all cases of fractures about the elbow joint for the first few days. The warning symptoms of intense pain, stiffening and swelling, cyanosis and lividity of the fingers should be looked for.

In cases of impending ischemia, the tension of the swollen muscles should be decompressed as suggested by Sterling Russell. He advises making long slits in the deep fascia, aseptically, with a long slender blade, inserted through tiny punctures in the skin. He states that longitudinal incisions in the skin can not be drawn together, and, if left open, will admit infection. He also advises the excision of necrotic areas or pressure sores under local anesthesia and covering the under-lying tissue defect immediately with Thiersch grafts.

The conservative treatment of Volkmann's contracture has made considerable progress since the general acceptance of the method of Sir Robert Jones. The principle of this method consists in the gradual continued stretching of the contracted joints by malleable iron splints. The wrist is first placed in extreme flexion so as to relax the flexion contracture of the fingers as much as possible. Then, by means of individual finger splints, the gradual correction of each finger is accomplished. When the flexion contracture of the fingers has been overcome, the contracture of the wrist is taken care of in a similar manner, by correcting the deformity in steps with the aid of a malleable splint. According to Jones, to obtain the best results, this method should be undertaken during the acute stage, a stage which lasts about a week.

Usually the orthopedic surgeon sees the case some weeks or months later, after the deformity has fully developed. One then has to decide whether the treatment should be mechanical or operative, or a combination of both. The operative methods generally applied may be divided into two groups.

1. The plastic operative measures on the soft structures,—such as tendon lengthening of the flexors of the wrist and fingers, resection of the pronators, flexor-plasty of the thumb, neurolysis of the ulnar and median nerves, the lowering of the common origin of the flexors at the internal epicondyle of the humerus (technique of Aberle and Bailey).

2. The bone plastic procedures, such as the resection of the forearm bones as recommended by Garre in cases where the nerves and vessels are shortened to such an extent that forced correction would carry with it the danger of grave circulatory disturbances. Resection with arthrodesis of the wrist also effects an indirect lengthening of the soft structures, and may be utilized in cases where tendon transplantation is anticipated.

In connection with the operative procedure, it must be mentioned that operation is only the means of rendering the deformity amenable to conservative treatment. The latter is indispensable and must be carried out faithfully and persistently as though the case had been treated by conservative treatment from the start.

At Steindler's Clinic, the operative methods most commonly applied were tendon lengthening of the flexors of the wrist and fingers, resection of the pronators, and flexor plasty of the thumb. These operative methods were reserved for the severe contractures which resisted all conservative measures. The operation is performed through a median incision over the palmaris longus, the superficial flexors of the wrist are exposed and then lengthened. Where ever possible the deep fascia (the vaginal fascia after Prentiss), the muscle fascia, and the tendon sheaths are preserved for reconstruction, as by this means adhesions are less likely to form. If necessary the tendon of the flexor sublimis digitorum and even that of the flexor pollicis longus may be lengthened. The plastic lengthening of the flexor profundus digitorum and the flexor pollicis longus are usually reserved for the most severe cases, as Dr. Steindler believes that when all the the tendons are elongated, the latter ones will relax sufficiently under proper conservative treatment.

## DISCUSSION

**C. G. Forsee:** There are some fractures of the elbow in which my experience will not permit me to subscribe to the views of other men, some of them of large experience.

In the first place, regarding loss of the carrying angle of the arm. I have never yet seen an instance of loss of the carrying angle of the arm in a fracture of the internal condyle; every case that I have seen has been in connection with a supracondylar fracture. I believe the x-ray men will bear me out in this assertion, although it is not the common belief nor what is taught in the textbooks. If you get fair reduction of a fracture of the internal condyle, you are not going to get loss of the carrying angle of the arm in that type of fracture. As Dr. Owen pointed out, the carrying angle of the arm is about 165 degrees. When you reduce a supracondylar fracture (which is the type usually followed by loss of the carrying angle) if you get the splint in proper position you will not have this trouble, but if you do not get the splint in proper position you are almost sure to have loss of the carrying angle. As a matter of fact, however, this is not such a serious disability so far as function of the arm is concerned.

To my mind, the only way we can intelligently reduce a fracture is to study it under the fluoroscope and then check up on it by means of x-rays. In supracondylar fractures which constitute by far the greatest number of fractures of the elbow, if you put the arm at a right angle, or a slightly acute angle, you are going to get better reduction in the majority of cases than by the Jones position.

As to compound fractures, in these cases there is always a tendency to callous formation which gives us more trouble than anything else. There is plenty of ground for my belief that very few if any of these cases are benefitted by operation for removal of the callus. In my opinion you are going to meet with failure in most cases.

Treatment of elbow fractures by drainage is, in my opinion a bad plan. Drainage as a usual thing tends to promote callous formation and subsequent ankylosis and as a routine treatment is a bad procedure. Very frequently, especially in young people, motion and use of the forearm has a tendency to obliterate callous formation.

Just a word as to the treatment of ischemic myositis. I subscribe very heartily to Dr. Goldberg's views as to the treatment of this condition, especially Volkmann's contracture. However, I believe there is one factor in the latter condition which has not been given a proper amount of consideration or study. Volkmann's contracture is a condition which occurs most commonly in children 5 to 10 years old. It is a peculiar fact that an injury which in a child of this age will produce Volkmann's contracture will not produce the same condition in an adult. The histological reason for this, I believe, is that in children the muscular structure of the forearm is very poorly developed and the density is different from the adult's better developed muscular tissue. Therefore, in a child an injury that interferes with the venous circulation, the poorly developed muscles are destroyed by lack of oxygenation and Volkmann's contracture is the result. I believe that is the reason that Volkmann's contracture is of comparatively frequent occurrence in children and rare in adults.

As far as operation for ischemic myositis is concerned, I believe that cosmetic results are about all that can be hoped for. Functional results are usually very poor. Of course if we can straighten the fingers and overcome the acute flexion of the wrist we have accomplished a great deal, but in my experience functional results from operation are practically nil.

**John D. Trawick:** Dr. Owen referred to overhead traction in the treatment of fracture, particularly in children. I would like to stress that point and incidentally to answer one of the objections raised by Dr. Forsee in regard to acute flexion.

First, let us recall one or two of the pictures exhibited by Dr. Owen showing fracture of the condyle with forward displacement of the fragments. I quite agree with Dr. Forsee that the employment of acute flexion in forward displacement of the condyle would very likely result disastrously. I recall a case in which the condyles instead of being forced back into position by acute flexion were caught between the shafts of the humerus and ulna radius and pushed forward, and upward. Dr. Keith called attention to this point in a case which he has probably forgotten, in which we employed traction until the condyles were brought into proper position and then brought the arm up into acute flexion. I have seen this work beautifully in several cases.

I was particularly interested in Dr. Goldberg's statement that Volkmann's contracture is not due to a nerve injury **per se**, although of course the nerves do become involved. The pathology can best be understood perhaps when we recall that it is a myositis due to a definite obstruction of the return venous circulation. Personally I have had no experience with any of the operations described by Dr. Goldberg. On the other hand, I have observed very satisfactory results in Dr. Jones' clinic from the use of his multiple splint. Dr. Jones was a genius in the use of this splint and I doubt whether it is possible for any of us to reach the same degree of proficiency that he attained, which was almost uncanny. I frankly confess that I have never been able to approach the perfection of his technique, but I do believe there is more hope of functional results following ischemic myositis from the use of Jones' multiple splint than I would be personally willing to promise from the operative procedures described by Dr. Goldberg, with which, however, I have not had sufficient experience to be proficient in their use.

**J. Garland Sherrill:** In making diagnosis in any case of fracture, the attending physician should exercise great care in manipulation, because excessive manipulation may cause considerable injury and seriously interfere with the final healing of the injury. Diagnosis of a fracture of the elbow is rather easy in most cases, but to determine the exact type and limits of the injury is not always an easy matter. The old idea that manipulation should cease upon evidence of tenderness still holds good. Dr. Dugan used to lay the greatest stress upon what he called the three cardinal points; (1) loss of function of the elbow; (2) pain and swelling and (3) change in the line of fixation.

The first essential in dealing with a suspected broken arm is to handle it gently and manipulate it as little as possible in determining the outline of the injury. Then determine the circulation in the radical artery at the wrist, which is a most important point because there may be an injury to the brachial artery or one of its branches that may lead to Volkmann's contracture or gangrene of the limb. I recall a case in which the brachial artery was ruptured and for three hours there was no circulation at the wrist, with marked swelling of the entire forearm. We cut down on the artery and sutured it and within five minutes circulation was restored with, as we thought at the time, a very happy result. We did not put any tight bandages on the arm. Nevertheless that patient developed Volkmann's contracture of the ischemic type and the final result was only fair function of the arm. This case strengthened my conviction that Volkmann's contracture is not always due to obstructon of the venous return but is sometimes the result of interruption of the arterial supply, and in this case too much time elapsed before the restoration of the circulatory function to permit of good results.

I have a great respect for Dr. Forsee's opinion, but if I were limited to one position in the treatment of fracture at the elbow, especially of the humerus, I would take the Jones position, but only after the fragments had been replaced by gentle manipulation. It is not necessary to put the arm up in plaster of Paris; the simplest form of dressing is best in my experience. The great trouble in all fractures of the elbow is the possibility of the formation of callus in the tissues where the ulna articulates. It only takes about one thirty-second of an inch of callus formation in this location to impair function. Don't begin manipulation too early and don't carry it too far, never to the point of pain. If the arm becomes completely ankylosed or there is too much callus, there is no place in the body where mobility can be obtained as readily as in the elbow joint. Resection gives fine function with increased mobility.

**M. Casper:** Dr. Sherrill is exactly right regarding the value of the Jones position. Personally I employ a modified Jones position, using a piece of adhesive all the way around to hold the arm in position and I have had good results and very little trouble. Dr. Forsee says that the triceps will be increasing the backward displacement. What will the biceps be doing all that time? That is the idea of the Jones position, to get the beneficent effect of the biceps pulling the fragments forward. Of course it is very important to first get the fragments back into position and to check your work with the x-rays. Another benefit of the Jones position is that we do not get absolute fixation of the joint as we do by using plaster of Paris or strong bandages of any kind. There is a little motion in the joint all the time and this helps materially in keeping down adhesion formation.

Another important point is the question of anesthesia. It is a very good plan to inject a little novocaine at the site of the fracture. We are usually not prepared to give general anesthesia when we see these cases and a little novocaine injected at the site of the fracture produces sufficient anesthesia to enable us to reduce the fractures without much trouble. Of course in children general anesthesia is always to be preferred.

**Joseph M. Frehling:** I would like to ask one question, that is whether the treatment of supracondylar fractures of the elbow should be considered an emergency procedure, or whether it would be better to permit twenty-four to forty-eight hours to elapse under a temporary dressing, to anticipate the possible development of swelling before final immobilization is carried out?

**Richard T. Hudson:** I wish to stress the gravity of supracondylar fractures. I know of no condition that can more quickly get us into trouble. If the patient is seen immediately after the injury is sustained, an anesthetic should be given and the fracture reduced and the arm placed in the Jones position. If the patient is not seen until several hours after the fracture has occurred and swelling has developed, we should not proceed further until we are satisfied that circulation has been re-established, say a period of three or four days during which time overhead traction should be employed. Then give the patient an anesthetic, reduce the fracture and put the arm in the Jones position.

I would also stress the importance of taking x-ray pictures of both arms in children. Very often epiphyseal and cartilaginous injuries are present which lead to a disability that is hard to explain afterwards. Therefore, I think x-ray examination of both arms should be made and if there are any loose fragments that cannot be replaced they should be removed.

**Guy P. Grigsby:** In connection with this subject, I wish to cite a case that occurred in the City Hospital some fifteen years ago. This woman had fallen on the ice and sustained a T-fracture of the elbow joint. It was just about the time that the Lane plate first came into vogue, and it seemed to be a procedure particularly suited to this case. I recall very well that a posterior incision was made and the external condyle entirely detached, and as it interfered with the reduction of the transverse fracture, it was removed and placed in a sterile solution until a Lane plate could be placed upon the transverse fracture. Then the external condyle was replaced in the elbow joint and fastened to the internal condyle with two ordinary lathing nails. Fortunately there was no infection and the woman got well. I saw her about five years later, at which time she was still carrying her hardware and the arm was apparently giving her no trouble.

This case illustrates what liberties we can take with joints at times without doing any harm, provided we can prevent infection.

The Jones position has been both commended and disparaged here tonight. My own belief is that, in common with other surgical procedures, if ordinary "horse sense" be exercised in employing the Jones position, it is a very useful procedure. It is my understanding that the Jones position is not intended to be used as a means of reducing the fracture, but rather to retain the fragments in place after reduction has been made.

The necessity for gentleness in the reduction of these fractures has already been stressed, but I do not think its importance can be over emphasized. Undue force with its attendant trauma is not necessary. If the patient be completely anesthetized and muscular spasm overcome, reduction can usually be accomplished without much trouble. Then make gentle flexion of the elbow with due regard for the circulation as determined by the amount of swelling present and particularly the effect upon the radical pulse. As a rule a moderate degree of flexion will serve to hold the fragments in place.

**D. Y. Keith:** Two phases of the subject that I wish to touch upon are diagnosis and prognosis, both of which come within the province of the radiologist.

Simple transverse or lineal fractures without displacement cannot be positively diagnosed without the aid of the x-rays. It is occasionally necessary to make a plate of the normal arm in order to be sure that there is an injury to the epiphyseal line in young patients.

I am convinced that most cases of the T-shaped type of fracture can be reduced by extension and weights if we will give them enough time. I have seen many such cases in years gone by and when seen within the first hour after the injury has occurred we can usually tell whether the fracture should be immediately reduced and the arm put in flexion, because if there is swelling it usually occurs within a short time after the injury. I have seen a number of these cases within one and one-half hours after the injury in which there was so much swelling that I could tell from observation without examination that it would be impossible to keep up the circulation if the arm were put up in flexion. I have seen such cases go as long as ten days with ordinary extension and weights by which time the swelling had abated, and if you were to make an x-ray film in these cases you should be surprised to find that in many instances the fracture had been perfectly reduced. By simply changing the position of the hand, or with a little more or a little less weight, many of these fractures will fall into line at the end of two or three days, and it will be surprising in how few instances open operation is necessary. Even in those cases where the elbow joint is displaced to one side or posteriorly, if you will put the arm in extension, either with ice to keep it cold or cotton to keep it warm (I have seen just as good results from one as from the other) and leave it there until the swelling has disappeared, reduction will offer no difficulty.

About fifteen years ago there was brought to my office a youngster who had fallen off a bobsled on which he had been riding with six other boys. He had fallen forward and had a supracondylar fracture with displacement greater than the diameter of the bone. I saw him in my office within two hours after the accident, by which time there was so much swelling that the fracture could not be reduced. He was taken to the Childrens' Hospital and the arm put up in extension with cotton on it to keep it warm. No attempt at reduction was made until the twelfth day, when it was easily accomplished by gentle flexion. Perfect function was the result in this case. At the end of six months he had forgotten which arm had been injured.

**O. R. Miller:** The tendency to callous formation in all fractures about the elbow joint has already been touched upon, but in some cases it does not stop at simple callous formation. Not infrequently we find cases of myositis ossificans following such injuries, and it is a question whether operative procedure is advisable in such cases. Myositis ossificans has a tendency to go through a definite cycle. It will appear and go on to the stage of so-called ripening and then disappear without operative treatment.

Simple callous formation has a tendency to limit the motion of the joint and in cases where it has persisted for one or two years I think we are justified in employing surgical procedure for its removal. However, we should be sure it is a case of simple callous formation and not one of myositis ossificans.

**A. R. Bizot:** I would say that in the presence of a fracture anywhere in the body it would be wise to first secure an x-ray picture before attempting any manipulation whatever. In the reduction of a fracture, with an x-ray plate before us we can manipulate with a great deal more intelligence and accuracy than we can without it. Furthermore, it serves as a valuable addition to our records.

Myositis ossificans sometimes occurs in muscles where there has been no injury of any kind. We have seen two such cases. I do not know how to explain it unless there is some underlying cause aside from injury.

"There is so much good in the worst of us and so much bad in the best of us that it ill behooves any of us to speak ill of the rest of us" is an old saying that has a direct application to the subject under discussion. I have seen what I would consider bad results in some of these cases after treatment at the hands of some of our best men, and vice versa. Therefore, I think it is a good idea to refrain from criticizing unfavorably the work of our colleagues in cases of this kind.

**A. A. Arnold,** (in closing): I wish to thank the members for their liberal discussion.

Dr. Forsee said he never saw a loss of the carrying angle of the arm in a case of fracture of the internal condyle. I would like to call his attention to one such case in my own person, which is typical. The end of the internal condyle was broken off and pushed forward and upward. A loss of the carrying angle is the result.

The Jones position is not a method of reduction but is designed for use after the reduction has been accomplished. In my estimation the Jones position is one of the best procedures at our command, but it can be very detrimental if flexion is forced. Properly used, the internal muscles will equalize the contraction of the extensor muscles and hold the fragments in position.

As to Volkmann's contracture, this is purely a circulatory condition but there is a difference between arterial and venous obstruction. In contracture due to arterial obstruction the pain comes on quickly, because there is complete blockage of circulation and starvation of the muscular tissues. In venous obstruction the process is slower and pain makes its appearance later. I do not believe Volkmann's contracture or myositis is ever due to nerve injury alone. Of course there may be nerve injury as a result of the interference with circulation, shutting off the supply of nourishment to the nerves as well as to the muscular tissues. When we see a case of Volkmann's contracture where the circulation has been completely shut off for three or four hours or partially obstructed for six to eight hours, there is very little we can do except to get a cosmetic effect. We may lengthen or shorten the tendons all we wish and the arm remains the same so far as function is concerned because the muscles are dead and will not react again.

**W. Barnett Owen,** (in closing): Reduction of the fracture is, of course, of prime importance. If we get the case immediately after the injury has occurred the fracture should be reduced promptly. On the other hand, if it comes to us after considerable swelling has developed we can afford to wait and direct our attention to the nerve and blood supply before attempting any other treatment.

Dr. Goldberg's paper very fully outlines what we know about a condition we would all prefer not to see. Volkmann's contracture is the source of a great deal of grief to the physician as well as the patient. As Dr. Bizot suggests, we should be magnanimous in our criticisms of the other fellow's work. Any of us who treat fractures for any length of time is going to have some bad results; we all have them occasionally.

In connection with Volkmann's contracture, a number of important things have been learned in the past few years. I remember very distinctly a report by Dr. Meyerding of the Mayo Clinic a few years ago, in which he said that of 128 cases, 5 per cent of them had not been bandaged at all. If we are honest with ourselves we must admit that in the past flexion and circular bandages have created more cases of Volkmann's contracture, but also know that it may occur where no bandages have been applied.

I have the greatest respect for Dr. Forsee's opinion, particularly in regard to the treatment of fractures in which he has had a wide experience, but there are some points on which I must differ with him, particularly in regard to the Jones position.

I was fortunate enough to be present at a clinic in the Massachusetts General Hospital some years ago when another doctor asked Dr. Jones this question: "What about this position of hyperflexion and supination. I have used it and it has been followed sometimes by paralysis, sometimes by Volkmann's contracture and all sorts of complications." Dr. Jones' reply was, "You must first reduce the fracture and then place the arm in hyperflexion and supination, not by force, but by brains."

**H. Goldberg,** (in closing): I do not feel that a pessimistic attitude should be taken in the treatment of Volkmann's contracture. There are different degrees of Volkmann's contracture. Some are mild, some are moderate, and still others are of the severe type.

In the first two types, the expectation of restoration of function with proper treatment is very good, while in the severe type, where all the muscles of the forearm are practically degenerated, the most one can hope to obtain is a good cosmetic result with the joints in good functional position.

One point, I wish to call attention in reference to the discussion of supracondylar fractures, is the lateral displacement that may occur along with the posterior displacement of the distal fragment of the humerus. It is important to correct this lateral displacement, to avoid the irritation of the ulnar nerve.

In this type we have a disturbance of the normal relation between the ulnar nerve and its bed in the post-condylar groove, where the lateral displacement of the lower fragment in supracondylar fractures has been uncorrected.

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## PHYTOBEZOAR, CASE REPORT*

WM. EDGAR FALLIS, M. D.

Louisville.

Phytobezoar, or food ball within the stomach is not a common entity even at this time of careful x-ray investigation when in search of the cause for obscure gastro-intestinal disturbances.

This fact, and the unusual early symptoms of the case I am presenting seem to me to be of sufficient interest to justify this report.

The term "Phytobezoar" is derived from two words; the Greek word for plant and the Persian "bezoar" meaning a concretion found in the stomach and intestines of animals. These concretions were of religious significance during the ancient Persian period.

The Phytobezoar consists of skin, seeds, fibers of fruits, and vegetables; the most common of which are persimmons, prunes, salsify and celery. The persimmon ball is the most common, probably because of the great amount of adhesive material found in the persimmon, 14 per cent of gum, and 7 per cent of pectin being present. Pectin is the substance in fruits which causes them to jelly; it is soluble in water, but when dilute acid is added to it an insoluble gelatinous mass is formed. It is therefore logical to conclude that the action of the dilute hydrochloric acid of the gastric juice upon the pectin in the persimmon forms the insoluble gelatinous mass which incorporates the skins, seeds, and fibers into the phytobezoar.

This hypothesis is further supported by

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*Read before the Jefferson County Medical Society.

the opinion of most observers that the phytobezoar is produced at one time after the ingestion of a large quantity of persimmons, and is not formed gradually, it never increases in size and has been found as only a single mass. While it is true that smaller masses of the same material have been known to cause obstruction in the small intestine, these smaller masses are believed to be pieces of the original which have broken off and passed through the pyloris.

There are two other types of bezoars that are worthy of mention; Trichobezoars or "hairballs" and Trichophytobezoars, or "mixtures" of hair and foods, these last named, are by far the most frequently found.

Urban Maes in 1928, after reviewing the literature on bezoars, found reports of 139 cases. Of this number only 23 were phytobezoars or true plant balls; the others were hairballs and mixtures of hairballs and food. It is of further interest to know that up to the year of 1923 only five cases of phytobezoars or true plant balls, had been reported in the literature.

The symptoms of pytobezoar are those that generally accompany a severe gastro entritis. After the acute stage has passed the patient may have only a vague epigastric distress or present a symptom complex resembling very closely gastric or duodenal ulcer or gall-bladder disease. As a rule there is a very little loss of weight in spite of the fact that the condition has existed over a long period of time, in one authenic report the condition was of twelve years duration.

Mistakes in diagnosis have been common, a phytobezoar has been diagnosed as floating kidney, carcinoma, gastric ulcer, tumor of the stomach, movable spleen, and pancreatic cyst. A carefully taken history, and a complete x-ray investigation seems to be the best means of establishing a correct diagnosis. The reports show that many gastro-intestinal series of x-ray investigation made by competent specialists in this line of work have failed to establish a diagnosis, even gastroenterostomy, cholecystostomy, and exploratory laporatomies have been performed and the phytobezoar overlooked when the mass was small:—a subsequent operation at some later date to relieve an intestinal obstruction eventually establishing a definite diagnosis.

Gastric ulcer is found to be present in a high percentage of the reported cases.

The treatment is essentially surgical;—gastrotomy with the removal of the mass provides the surest means of relief, manipulation and breaking down of the mass has been tried, but it is often followed by obstruction in the small intestine by pieces of the mass.

The case I wish to report is that of a school boy 13 years of age, one of seven livng children, the father, and mother are living, and they are all in apparently perfect health. There is no history of any hereditary disease in the family, and their home life is the average for families living in a good rural district.

His chief complaint was vomiting at night after he went to bed.

He also complains of pain in the upper left quadrant of the abdomen.

The present illness began on Sunday, November 20th, 1932. During the afternoon, he succeeded in winning a persimmon-eating contest, and after going to bed that night vomiting a large quantity of persimmons. The following day he could not retain any food, but took water freely, and retained it. Two days later he vomited a large quantity of bright red blood, after which time he vomited repeatedly at night. He did not vomit during the day, and would take small quantities of food, which would be vomited after going to bed. He insisted that he felt better when he was sitting up.

The previous history revealed the fact that he had never been sick in his life.

I saw this boy fifteen days after the onset of the disease. He was a fairly well developed individual with marked pallor, and general debility. His temperature was 100.4 F., pulse 128, his respiration 20. His blood pressure was 106/70 mm. His eyes, nose, and throat were negative for disease or deformity.

There were moderately enlarged lymphatic glands in his neck, axilla, and groin, they were not tender.

The lungs were negative.

There was a slight systolic murmur heard over his heart.

The abdomen was distended. There was a large mass in the upper left quadrant, extending two fingers' breadth below the costal margin. This mass was slightly tender on deep pressure. It was slightly movable, and had a distinct notch in it.

The liver dullness was markedly increased, extending well below the costal margin, and upward to the fifth interspace.

His blood count showed 2,600,000 red cells, and 14,200 white cells. The differential stain showed 10 staffs, 4 juveniles, 2 Mono, and 12 lymphs. Haemoglobin 41 per cent.

I asked the father to leave this boy in the hospital for further study, including x-ray investigation, but could not persuade him to do so. I suggested to the local physician that he might have a persimmon ball in his stomach, but in the presence of a marked pallor, gastric hemorrhage, temperature, rapid pulse, and large lymphatic glands, increased liver and spleenic dullness, I rather considered the case one of atypical lymphatic leukemia. I gave them a rather unfavorable prognosis and recomuended that he be given iron, arsenic, put at rest in bed, and suggested a careful regulation of his diet. Two weeks later the boy returned. He was still vomiting at night, but not during the day. They reported that considerable difficulty was experienced in getting his bowels to move. His general appearance was much improved. His temperature was 101 F., pulse 120, respiration 18. The liver dullness was markedly decreased, the mass in his left side was also smaller, and the notch could still be distinctly felt. The lymphatic glands were still present, but were some what smaller, and were not tender. At this time additional laboratory data was collected; the red cell count was 3,500,000, haem. 61 per cent, his white count was 13,580, differential count showed polys. 62 per cent, seg. 50 per cent, staff 12 per cent, lymphs 33 per cent, mono. 2 per cent, eosino 3 per cent. Fragility test of his red blood cells showed no increase. His clotting time was normal, bleeding time normal. Wassermann and Kahn, negative. Stool examinations were negative for parasites. Blood platelets 250,000. This additional laboratory data practically eliminated leukemia and purpura hemorrhagica, leaving for our consideration at this time Banti's disease, and phytobezoar.

The improvement in his general condition kept the father from leaving the boy for further study at this time.

Several days later, I was called on the telephone by the local physician to ask my opinion of taking him to a nearby physician who treated such cases with x-ray. I advised them against any x-ray treatment until a definite diagnosis could be reached. With this understanding he was given a barium meal, and a tentative diagnosis of intrinsic filling defect of his stomach and enlarged spleen was rendered. He was then brought to the Baptist Hospital where a complete gastro-intestinal x-ray series was made, which showed a large central filling defect in his stomach.

After carefully preparing the patient, including the administration of the necessary fluids to overcome the present dehydration he was operated on January 5th, 1933. A high left rectus incision was made and the abdomen viscera was carefully examined. A large mass was felt in the stomach near the cardiac end. There was some induration around the pylorus. The spleen was apparently normal in size and location. The liver was apparently normal in size. There were several smaller masses found in the intestines, but they seemed too small to give any further trouble. The stomach was opened on the anterior surface perpendicular to its long axis and the black putty-like mass about the size of two hands removed. This mass had a distinct notch in it which we felt and thought was the notch in his spleen. There was a smaller superficial ulcer near the pylorus, which we considered was the result of the irritation from the foreign body and which was not disturbed. The stomach and abdomen wall were closed by the usual methods and the boy made an uneventful recovery, leaving the hospital on the 17th post-operative day.

## DISCUSSION

**C. H. Harris:** This condition, while rather uncommon in humans, is of most frequent occurrence in the lower animals. As you know, the Health Department makes both ante-mortem and post-mortem inspection of all animals slaughtered for food, and from this source we have been able to collect a number of interesting specimens of phytebezoar, a few of which I have here and will pass them around for inspection.

One of the specimens exhibited is a typical hair-ball removed from the stomach of a cow. It probably had its origin in the cow's habit of cleaning itself with its tongue, and the almost perfect spherical contour of the specimen was evidently the result of the peristaltic action of the stomach. The presence of these bodies in the stomach of a cow does not seem to affect it in any way, probably due to the peculiar anatomical structure of the animal's stomach.

**D. Y. Keith:** Until something like ten years ago phytebezoar was considered something of a curiosity, but within more recent years reports of such cases in the x-ray literature have been of comparatively frequent occurrence. X-ray diagnosis is usually very easy. Frequently, spectacular films are obtained.

Dr. Fallis' case is rather unusual because of the size of the phytobezoar. No case that I have seen reported compares with it in either dimensions or weight. As shown on the films here presented, a large filling defect is usually easily seen.

Frequently the barium shadow divides on striking the phytobezoar giving a cascade filling defect that is quite spectacular on the fluoroscopic screen.

One the size here present can usually be visualized on the roentgen film as was shown on the primary film presented. This with a barium meal makes the roentgen diagnosis very easy.

**Wm. Edgar Fallis,** (in closing): As far as I can ascertain, this is the youngest patient on record having a true phytobezoar, the nearest recorded case being in a patient 18 years old.

The condition occurs most frequently in adults around forty years of age. This is also the second largest phytobezoar of which I can find any record. The Mayo Clinic reported one case in which the tumor was larger, weighing 139 gms. immediately after removal.

There is no question that this boy had an enlarged liver at the time I first examined him, but it appeared to become smaller at each succeeding examination. He had enlarged lymphatic glands, high temperature, and everything that goes with a marked disturbance of metabolism. I cannot explain the connection between the two but there was evidently something about the condition that gave rise to this general metabolic disturbance.

I did not get the history of the boy having eaten this large quantity of persimmons until he was ready to leave the hospital. He was afraid of his father's anger if he should find it out. Hence the necessity for so much laboratory data in my efforts to establish the diagnosis.

This very interesting phenomenon (phytobezoar formation) is explained by medical chemistry as the conversion of pectin, by the dilute hydrochloric acid content of the gastric juice, into an insoluble gelatinous mass, upon which nothing that could be put into the stomach would have any effect without injury to the stomach wall.

## XERODERMA PIGMENTOSUM*

Winston U. Rutledge, M. D.

Louisville.

On March 10, 1933, these two patients were admitted to the Children's Free Hospital on the dermatologic service of Dr. Willmott. They were sent in by the Floyd County Health Department with a diagnosis of congenital ichthyosis.

The history which I was able to obtain from Floyd County authorities relative to them, stated that they were born of healthy, apparently normal parents who were not related. They had been married for eighteen years and had six other children, five of whom are alive and well while one died at the age of one year from "Flux." The mother has had no miscarriages or still births. Both of these children were apparently normal for the first few months of their lives. The boy, age four, had pneumonia when thirteen months old and his present condition started immediately after his recovery from this infection, while the girl who is now ten, had measles at the age of ten months and this apparently precipitated her attack.

In both, the trouble first started on their temples as a red, scaly eruption which rather rapidly spread to nostrils and eyes, and in six months their hands and feet had become involved. The father believes that the progress of the disease has been more rapid in the boy than in the girl.

When first seen at the Children's Hospital, they presented a pitiful picture as they sat huddled in their beds attempting to shield their eyes from the light.

The boy was well developed and nourished for his age, his hair appeared dry and lusterless but was normal in quantity. His face presented a mottled appearance which, on casual inspection, appeared to be due to an extreme degree of freckling, but a closer examination showed, scattered over the skin, numerous small keratotic thickenings, many dilated superficial blood vessels, macular atrophy and scaring. He had a marked conjunctivitis and photophobia but the corneae appeared normal. On the right side of his neck was a pea sized crusted area which appeared to cover a superficial ulceration. The skin over his entire body was abnormally dry and his neck, forearms, and legs below the knees showed a similar type of pigmentation.

The little girl was equally well developed and nourished but the skin over the exposed portion of her body presented a still more striking appearance due to the longer duration of the disease and the marked amount of scaling which had developed. There was an irregular loss of hair with small cicatrices and capillary ectasia scattered through the scalp. Dilated capillaries and freckling were everywhere present except that complete loss of pigmentation had occurred in the scars.

The cicatricial contractions had produced ectropia of both lower lids and the everted conjunctiva was inflamed and bathed with a purulent secretion. There was a diffuse keratitis of the left cornea and several superficial ulcerations were present on the sclera of the same eye. There was an extreme amount of atrophy of the skin and subcutaneous tissues on the nose and ears; the former had the pointed appearance often seen in cases of Lupus Vulgaris of the face, while the latter appeared twisted, misshapen and shrunken. Her lips were swollen and partly covered with crusts and on the lower left cheek was a dollar sized ulceration covered with a thick scab. The mottled pigmentation which existed on her face and extremities was also present to a lesser degree on her trunk.

The general physical examination of both of these children was essentially negative. Their teeth and buccal mucous membranes appeared perfectly healthy. Their blood examinations were normal except for a moderate amount of secondary aenemia, while their leukocytic counts were within normal limits. The boy's urine was negative while the girl's showed a trace of albumin.

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*Read before the Jefferson County Medical Society,

Since their stay in the hospital, the crusted areas which were thought at first to cover epitheliomas, have healed completely under applications of soap and water and boric acid ointment, leaving only irregular slightly hypertropic erythematous scars, which in no way suggest malignancy. However, other superficial, crusted ulcerations have subsequently developed.

Xeroderma Pigmentosum was first described by Kaposi in 1870. It is a rare condition but one which excites our interest because of the striking symptomology which it presents and the mystery surrounding its etiology. Probably many mild examples of the disease are often overlooked, especially those occurring in adults because of its close resemblance to freckling which may be the dominant characteristic. Such a case was recently reported by Montgomery and Reuter in the Archives of Dermatology and Syphiology, and its diagnosis was established only after a careful histologic study of removed sections of skin.

Generally the disease makes its appearance by the end of the first or second year but a few cases have been reported by Nicolas, Joseph Favre and others, which did not develop until adult life had been reached.

Erythema and edema are the first changes to be noticed and they are followed by the development of lentigenous pigmentation, excessive dryness, telangiectasia and keratotic thickenings of the skin. Finally ulceration, scaring and tumor formation complete the typical picture. Photophobia, lacrimation and blepharospasm develop early while corneal ulcers, ectropia, keratitis and blindness generally follow. The conjunctiva of the everted lids frequently becomes the site of the development of benign and malignant tumors.

The disease is generally fatal before the end of the second decade and death usually results from cachexia and malnutrition or some intercurrent infection, although rarely the malignant changes which develop in the skin may be directly responsible for the fatal termination.

It occurs about equally in both sexes but the frequent occurrance of more than one case in the same family strongly suggests the possibility that some congenital factor is responsible for its development.

Unfortunately little is known at present concerning its etiology. The action of actinic rays on the skin of predisposed persons seems to be the direct cause of the disease, but what produces this hyper-sensitiveness of the skin has not yet been determined. Martenstein and Bokowitsch have definitely shown the skin of these patients to give normal reactions to visible light and heat rays as well as to various chemicals. Apparently the Ultra-Violet end of the spectrum is responsible for the production of the pathologic changes.

The study of Simens and Kohn of three hundred and thirty-three cases of Xeroderma Pigmentosum occurring in two hundred and twenty-two families brought out the history of consanguinity in 25 per cent of the parents and this fact led them to suggest the union of recessive mendalian characteristics as a possible explanation but unfortunately this improvable theory could be of no aid in explaining the other 75 per cent of cases.

For years workers on this disease have attempted to demonstrate the presence of photodynamic chemicals in the blood of these patients, as this would explain their reaction to Ultra-Violet light, but unfortunately no such substances have ever been demonstrated in the blood or secretion of the body. However, the fact that porphyrins can be consistently demonstrated in cases of Hydroa Aestivale and congenital Porphyrinuria makes us feel that such substances have not been overlooked in these cases.

It is interesting to note that recently Woodbury has shown that normally there are present in the blood, tissue fluids and cells of the body, photodynamic substances which, when they absorb certain frequencies of radiant energy, produce electro-chemical energy, which in turn is capable of producing inflammatory reactions in the tissues. Such discoveries as this may ultimately lead us to the final explanation of the cause of Xeroderma Pigmentosum.

The similarity between this condition and cases of senile and pre-senile atrophy of the skin, has been mentioned before, but a striking difference in the two conditions is that in senile atrophy, only neoplasms of epithelial origin may develop, while in the Xeroderma Pigmentosum, every cellular element in the skin may be the seat of malignant degeneration. Follmann, in the September 1932 issue of the German Archives of Dermatology and Syphiology, reports the case of a patient who was kept under constant observation at a hospital from the age of five years until he died, five and a half years later, from a secondary infection. During that time he removed from the patient's skin, six distinct types of neoplastic growths. He states that it should be noted that in Xeroderma Pigmentosum, the entire skin and not a single element becomes diseased. The equilibrium existing between the component parts is lost and because of this loss of control, all the different cells of the skin may come to lead independent lives in the form of tumors.

There are few conditions that can be confused with Xeroderma Pigmentosum. The atrophies of old age, extreme cases of freckling and cases of arsenical dermatitis being about the only ones. In many of these border line cases, a careful study of the histopathologic findings in the skin are often necessary in order to reach a correct diagnosis.

A consideration of the treatment of this disease must of necessity be brief because of its unsatisfactory nature. Shielding the skin and eyes from the direct rays of the sun and even from daylight, is of first importance. This can only be accomplished by keeping the patient indoors or by completely covering the skin with articles of clothing. Salves containing quinine or sodium naphthol sulphonate may help slightly in protecting the skin against the absorption of actenic rays. Dark glasses should always be worn. Keeping the skin well lubricated with a salve or grease is also of importance in helping the patient to be comfortable. When tumors appear, they should be removed immediately with a knife, curette, electric needle, x-ray and radium, as such growths enlarge rapidly and add greatly to the disfigurement of the patient unless taken care of. However, all of these measures are only palliative and do little to prolong the unhappy existence of these unfortunate patients.

## DISCUSSION

**C. B. Willmott:** Unfortunately, most of these patients are not seen until the disease has become fairly well developed. Since I have been in Louisville I have seen two cases in very young children, one 6 months old and the other 8 months old. At that time neither of these cases presented any keratosis, simply small areas of apparent atrophy of the skin. Later I had the good fortune to see these cases after keratosis had developed on the previously atrophic areas.

Another interesting point is that, despite the comparative rarety of the disease, diagnosis in well developed case is very easy. I imagine that any man in this room after seeing the patients presented tonight would be able to make the diagnosis without difficulty. Some of these patients live to be 35 or 40 years old but most of them die before reaching 21.

**Albert E. Leggett:** I have had no opportunity to read up on this subject, but it seems to me that the most annoying complications would be the photophobia and ectropion that go with the corneal ulcers, and that this might be in some degree overcome or eliminated by suturing the lids together and letting them unite, thus giving the patient ample vision and at the same time preventing the corneal ulcers and relieving the photophobia.

It seems that any treatment of this condition is merely palliative. I imagine blindness in these cases would come from scarring of the cornea from corneal ulcers, with keratitis as a secondary condition.

# CARCINOMA OF THE LARYNX*

W. O. Johnson, M. D., F. A. C. S.

Louisville.

W. B. R., 34 years of age, male, white.

Chief Complaint: Huskiness of voice for one year, chronic, non-productive cough, weakness.

Past History: Usual childhood diseases, otherwise general health good.

Marital History: Four children living and well, no miscarriages.

Habits and Occupation: Has been a cigarette smoker for nineteen years, occasional drinker of alcohol, excessive coffee drinker; wood-worker, in dust and shavings.

Present Illness: In February, 1931, while yodelling one night, felt something "thud" in his throat, but did not notice change in voice. Upon arising the next morning, found that his voice was husky and weak. This huskiness gradually grew worse and in two months he was unable to speak above a whisper. During the following six months, voice remained about the same. After being hoarse for eight months, he then began local applications to throat, which improved his voice. But at no time did his voice ever return to normal. Voice always weaker when tired. Only slight weight loss, general health otherwise good. On April 15, 1932 was seen by Dr. Curt Krieger, and biopsy done under cocaine anesthesia. At this time a papilloma was removed from the right vocal cord. No complications. After a few days, voice improved. Diagnosis: benign papilloma of vocal cord. Patient was under observation with gradual return of growth on right cord, and slowly progressing to left cord. On January 9th, 1933, Dr. Krieger again removed polyp from right vocal cord and cauterized base. Pathological diagnosis of specimen removed revealed squamous carcinoma of the larynx.

Physical Examination: Well developed, fairly well nourished man of 34 years. Skin clear. Blood pressure: 125/70, pulse rate 72, temperature 98.6 degrees, respiration 20. General physical examination essentially negative except for laryngeal examination, which by indirect laryngeal examination revealed a papillomatous grey growth protruding from the right vocal cord and extending along across mid-line to left side. The motion of right cord is limited by the growth, but not immobile. There is considerable infiltration about it.

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*Read before the Jefferson County Medical Society.

Laboratory Work: Red Blood Count: 4,440,000; White Blood Count: 11,300; Hemoglobin: 82 per cent; Polymorphonuclears: 64 per cent; Lymph.: 34 per cent; Monocytes: 2 per cent.

Urine Analysis: Straw in color, acid in reaction, Spec. Grav. 1020, Albumin and Sugar negative. No Red Blood Cells, Casts, or pus cells noted.

Wassermann: Repeatedly negative.

On February 8, 1933, one-stage laryngectomy was done under local anesthesia. Patient had very little post-operative reaction, and although a little slower than usual, made a satisfactory convalescence. Wound healed by granulation.

In this case, as a result of the infection which developed after the operation, the attachment of the trachea to the skin, which did not heal firmly, was pulled loose in a coughing spasm. This necessitates the wearing of a tracheotomy tube until the wound has sufficiently healed, and then a plastic operation can be done. The patient returned to work April 15th, has gained in weight to normal. He is learning to talk without the aid of an artificial larynx and can be readily understood across the room, now.

The interesting points in this case are: (1) the age of the individual (2) absence of a history of excessive use of the voice, (3) the appearance of a benign papilloma of the larynx which later became malignant, and (4) large size of tumor without fixation of cord.

Prognosis: The points in favor of a good prognosis are:

(1) Intrinsic carcinoma.

(2) Squamous cell carcinoma arising from a papilloma, (more mature cells with slower growth).

(3) Absence of fixation of cord suggests the absence of metastasis.

(4) Complete removal before extension beyond laryngeal box.

(5) Satisfactory convalescence without evidence of local metastasis in four months.

The above leads me to believe that we may expect most satisfactory results in this case.

In closing I should like to emphasize the importance of early investigation of the larynx if patients complain of persistent hoarseness. In the treatment of carcinoma of the larynx, as in the treatment of carcinoma elsewhere in the body, early diagnosis is one of the most important factors.

## DISCUSSION

**A. J. Miller:** The first section from this specimen appeared to be benign and even at the present time I think one might say that, at the most, the tumor was not very malignant. A comparison of the sections indicates that the degree of malignancy, if we might speak of it as such, increased materially during the interim between the two sections. At the present time I feel that this man has no metastasis and will not develop a recurrence. It is a low-grade malignancy and that is quite characteristic of most tumors in this location. In most cases these patients can be cured if the excision is sufficiently extensive.

The question of radiotherapy of course presents itself. As stated, however, these tumors are not very malignant and furthermore they are not especially susceptible to radiotherapy, so it takes very large doses of radium to have any effect and this is apt to cause considerable damage to the larynx, with resultant prolonged illness from radium burn. Therefore, it would seem that surgical treatment is the procedure of choice in these cases. If seen early most of them will yield quite readily to surgical treatment because of the low grade of malignancy which characterizes them.

**A. L. Bass:** I had the pleasure of seeing this young man in the clinic. The first time I saw him he gave a history of not having been able to speak above a whisper for four months, and at that time he had this papillomatous-like mass in the middle third of the cord. The most frequent location of these tumors in adults is in the middle or anterior third of the cord. I felt satisfied that it was malignant and a few days later Dr. Krieger was kind enough to make a biopsy and reported that the tumor was papillomatous. He was watched for a few weeks and the growth extended to the other cord, after which there was nothing left to be done except a laryngectomy.

This type of growth, intrinsic in character, arising in the middle third of the cord or subglottic area, is more amenable to surgical cure than malignancy of any other part of the body. On the other hand, extrinsic cancer in this location is practically always fatal.

I agree with Dr. Miller that radiotherapy in these cases is of no avail.

Sex and age play an important part in intrinsic cancer of the larynx. Jackson reported 62 cases, the youngest of which was 23. Chiari reports a case in a patient of 16 years. As to sex, of the 62 cases reported by Jackson only 8 were in females.

**Curt Krieger:** It is an interesting fact that approximately 4 per cent of all malignant lesions in the body occur in the larynx. Study of a large group of cases of laryngeal carcinoma reveals that only 25 to 33 per cent of these individuals present themselves in time for successful surgical intervention. This would lead to the inference that diagnosis of carcinoma of the larynx is extremely difficult, or that physicians in general are not well informed as to the symptoms of carcinoma of the larynx. Undoubtedly a considerable proportion of these patients do not seek medical advice until in the terminal stages of the disease. Unfortunately, however, a great many do present themselves with a history of having been treated for many months for hoarseness or cough without an examination of the larynx or a positive diagnosis ever having been made.

I think every physician should learn to use head and laryngeal mirrors. They are almost as important in general practice as the use of the stethoscope and a knowledge of the technic is easily acquired.

Referring to Dr. Bass' remarks, age and sex in connection with the incidence of laryngeal cancer are not as important as they were formerly thought to be. Dr. Bass said one surgeon reported a case in an individual of 16 years. Several have been reported in the early 20's. So age is not of major importance. As to sex, probably with the increase of smoking among women, future statistics will show a considerable increase in the incidence of carcinoma of the larynx with the fair sex.

In regard to the operation of total laryngectomy, we may now say with proper pre-operative preparation, local anesthesia, improved surgical technic and careful post-operative watchfulness, the mortality has been reduced to an incredibly low figure. Therefore, in a definite case of carcinoma of the larynx when indicated, there need be no hesitancy in urging the patient to submit to a total laryngectomy.

Probably some of the members were astounded on hearing a man talk from whom the larynx had been entirely removed. The voice is, of course, husky or the buccal type. For many years we were under the impression that the vocal cords and the larynx were absolutely necessary for vocalization. Then we learned that in cases where it was necessary to remove one or both of the true vocal cords, the ventricular bands or false cords functioned fairly well in producing the vibrations necessary for voice production. Later we were amazed by patients in whom the entire larynx had been removed and the trachea had no communication with the mouth, but opened externally in the neck, developing a voice to carry on ordinary conversations. In this case the patient simply swallows air, and the muscles of the throat and cheeks seem to take on the function of the cords. He fills his stomach with air, speaks several sentences by forcing air up through the esophagus by means of his abdominal muscles and then pausing and again swallows air.

While a total laryngectomy with an opening in the throat is somewhat of a social handicap, there is no imminent danger or risk to the patient while performing his daily duties if he does not try to go swimming because he would fill his lungs with water when drawing in air. Some wear a small piece of gauze, or apron, over the opening which prevents the aspiratiion of dust or foreign particles.

In regard to bronchitis in these laryngectomized patients, its incidence is not any greater than in individuals with normally functioning laryngae. Another interesting fact is that these patients are not subject to rhinitis or head colds, because of course, the nose, mouth and pharynx are not used for respiration.

**Will R. Pryor:** This case brings out a number of points that are important to both the general practitioner and the specialist. First, from the standpoint of the general practitioner, is hoarseness. This man had been hoarse for more than a year when he presented himself, which teaches us that every case of hoarseness persisting for more than three or four weeks, which does not respond to ordinary treatment, should certainly have a laryngological examination.

From the standpoint of the specialist, here again we see disproved the old idea that malignancy of the larynx causes early fixation. As a matter of fact, it is only after the disease has become far advanced that we get fixation of the larynx. In making sections in these cases, it is important that we remove as much tissue as possible, because many pathologists say that upon making section they often find only minute evidence of malignant degeneration, sometimes in an area about the size of a pin-head.

We frequently hear it said that if the individual be under 40 years old, malignancy can be ruled out. I was reading today an account of a case in which a New York man operated upon a girl of 20 for malignancy of the larynx.

As to differential diagnosis, the most important possibilities are lues and tuberculosis. The former can be ruled out by a negative or confirmed by a positive Wassermann test, as well as the characteristic appearance of the throat. In lues the larynx is very red and there is a deep crater-like ulcer with its typical punched-out appearance. Tuberculosis of the larynx is, as a rule, secondary to a pulmonary infection. We sometimes see a tuberculous larynx with a malignant lesion superimposed upon it. In such cases we can easily differentiate by removing a piece of the tumor and examining it. Another point is that a malignant lesion usually occurs in the middle or anterior third of the cord while tuberculous lesions are almost invariably in the posterior third.

I had an opportunity to observe about twenty-five laryngectomies in the Hajek Clinic in Vienna, and I never saw a case in which the disfigurement was less nor the result any better than Dr. Johnson has shown us here tonight. We must bear in mind when looking at a lesion with a mirror that the lesion is always one-third to one-half larger than we can see with the mirror, and if there is any doubt at all it is wise to do a laryngectomy.

**W. O. Johnson,** (in closing): I wish to thank the members of the Society for their liberal discussion.

As to whether hemilaryngectomy, laryngectomy or laryngo-fissure is indicated in these cases, it all depends upon the extent of growth at the time we see the patient. Jackson and one or two other clinics do laryngectomy in 5 to 12 per cent of cases, and usually hemilaryngectomy on the remainder. They are fortunate in getting their cases early. The mortality following laryngectomy is about 3 per cent, and following hemilaryngectomy and laryngo-fissure, about 5 per cent. Recurrences run as high as 35 per cent after hemilaryngectomy, and when the condition recurs it usually runs a rather rapid course. Therefore, the mortality being about the same and the disfigurement not much greater in one than in the other, I think the question whether to do a hemilaryngectomy, laryngo-fissure or laryngectomy is entirely determined by the extent of the growth at the time we see the patient.

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## BOOK REVIEWS

DIET IN SINUS INFECTION AND COLDS. By Egon V. Ullmann, M. D.

The first part of this book furnishes the necessary data based on the scientific research of decades and now recognized by authorities. It deals with the importance of first, the basic diet, and second, the effects of salt reduction, the latter being treated extensively from all possible viewpoints.

The second part of the book deals in detail with the application of the diet; what to eat, when to eat, and how to prepare the food. In a special chapter is discussed the importance of looking for mistakes in applying the diet if complications arise or its results are not as prompt as expected. The importance of fruit and vegetable juices and how to prepare them is also covered.

An appendix gives about one hundred fifty recipes which are a valuable aid to the patient carrying out the diet.

The MacMillian Company, New York, Publishers. Price $2.00.

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SURGICAL CLINICS OF NORTH AMERICA. (Issued serially one number every month.) Volume 12. Number 2. (New York Number—April 1933) 274 pages with 56 illustrations. Per Clinic Year (February 1933 to December 1933). Paper, $12.00; Cloth. $16 00 net. Philadelphia and London: W. B. Saunders Company, 1933.

This volume contains a very splendid symposium on Cancer, which include a discussion on cancer in virtually every organ or region of the body.

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A TEXT-BOOK OF MEDICINE: (By 141 American Authors) Edited by Russell L. Cecil, A.B., M.D., Sc.D., Professor of Clinical Medicine, Cornell University, Medical College; Associate Attending Physician, New York Hospital, New York City. And Associate Editor for Diseases of the Nervous System, Foster Kennedy, M.D., F.R.S.E., Professor of Neurology, Cornell University, Medical College; Director, Department of Neurology, Bellevue Hospital, New York City. Third Edition, Revised and Entirely Reset. 1664 pages, illustrated. Philadelphia and London; W. B. Saunders Company, 1933. Cloth, $9.00 net.

Nothing short of complete resetting would suffice to get into the *New (3rd) Edition* of this great work the vast amount of new developments in Internal Medicine. Entirely new articles—14 *of them;* others largely rewritten to include all the newest knowledge, particularly as related to infectious diseases and disorders of the pituitary, suprarenal and parathyroid glands. It is here—every last word of it; and presented by 141 authorities second to none. Rightly has this great work been called "The Voice of Medical America." Here are the 14 new articles: Plague, kala-azar, psittacosis, rat-bite fever, pertussis, the erythemas, poisoning by radioactive substances, diseases of the bronchi, hypotension, diabetes mellitus, diseases of the para-thyroids, diseases of the suprarenals, diseases of the pituitary, the neuroses.

Remember, *every page* revised, an amazing amount of new material added, and the book reset.

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THE HISTORY OF DERMATOLOGY. By William Allen Pusey, A. M., M. D., L L. D., Professor of Dermatology Emeritus, University of Illinois, Sometime President of the American Dermatological Association and of the American Medical Association. With 33 illustrations. Charles C. Thomas, Springfield, Illinois, Publishers. Price $3.00 post paid.

The author has the honor of writing the first history of Dermatology in English and has given to the profession a very erudite and interesting book.

In reciting the story of the development of this branch of medicine an intimate part of general medicine dating from the ancient Egyptian and Babylonian, has been given.

This volume is beautifully printed and illustrated. It tells the story of dermatology from 300 B. C. to the present. The incorporation of an historical index, replete with factual data, adds greatly to the value of the book.

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NEXT MEETING HARLAN

## COUNTY SOCIETY REPORTS

**Grant:** The regular meeting of the Grant County Medical Society was held at the office of the Health Department in Williamstown, Wednesday evening, September 20, 1933, with the following members present: H. H. Ellis, C. H. Eckler, J. W. Abernathy, A. D. Blaine, W. J. Zinn and C. A. Eckler.

The minutes of last meeting were read and approved and all communications read and disposed of. One, especially from the Bureau of Public Health at Washington, relative to offering the doctors free literature on the asking and a journal on venereal diseases at fifty cents a month. This journal was subscribed for by N. H. Ellis, C. M. Eckler, A. D. Blaine, J. W. Abernathy and C. A. Eckler. Dr. Ellis and C. M. Eckler paying their subscription fee of 50 cents each. This journal will be up-to-date and should be in the hands of every member of this society for we know that venereal disease in this County is on the increase.

The NRA was brought up and discussed without any action as yet by our Society.

Reports of clinical cases were called for and a very interesting case of Phlegmasia alba dolens was reported by Dr. A. D. Blaine, following an abortion.

Dr. C. A. Eckler reported a case of Diphtheria in a boy at the age of ten years of tonsillar type. He used 5000 units of antitoxin and urged the use off 10,000 in all cases as an initial dose as he does not think 5000 was quite enough in this case.

Some interesting cases of orchitis were reported, one in a boy 14 years of age from venereal disease.

We now entered into the subject of the evening which was the report of the State meeting by Dr. N. H. Ellis. Dr. Ellis, after finding Dr. Mann, the regular delegate, could not attend, consented to be our delegate.

Dr. Ellis related his trip as he motored through picturesque Kentucky with Dr. White of Covington, his visit to Bardstown, Bowling Green, Lincoln's Memorial, Mammoth Cave and other points of beauty in Southern Kentucky, landing there in time to meet with the House of Delegates and address them in regard to what we were doing here in Grant County. The Doctor went into detail, step by step of the meeting, told of the committees appointed and showed the enormous work and good the State Society is doing. He stated that this was the largest number of delegates ever in attendance at a State meeting. He also stated that the doctors of Louisville offer our society a one day course of lectures at any time we may ask them.

The Society made a motion that the Secretary write Dr. Barbour in regard to this course. Motion carried. Dr. Ellis talked of the Woman's

Auxiliary and of the election of Mrs. B. K. Menefee to the presidency of same. He also laid special stress on Dr. Kimball's paper on Thyroid. Dr. Kimball was from Cleveland, Ohio. The Society made a motion and seconded that Dr. Ellis be thanked for this excellent report and that his report be accepted.

The program for next time will be announced later. We now adjourned to meet the third Wednesday evening in October.

C. A. ECKLER, Secretary.

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**Jefferson:** The followiing is the program for the November meetings of the Jefferson County Medical Society:

**November 6th—Essay**

Symptoms, Diagnosis and Treatment of the Chronic Sinus, with Special Reference to the Antrum. Lantern Slides. Claude T. Wolfe, M. D.

Discussion to be opened by Drs. A. L. Bass, O. O. Miller and Jos. C. Bell.

**November 20th**

**Clinical Pathological Conference—Cases for Diagnosis**

1. Clinical History presented by Guy Aud, M. D.

Discussion to be opened by Drs. C. J. Armstrong and F. M. Stites.

Autopsy findings, Harry M. Weeter, M. D.

2. Clinical History presented by Virgil E. Simpson, M. D.

Discussion to be opened by Drs. Stanley T. Simmons and L. Wallace Frank.

Autopsy findings, A. J. Miller, M. D.

CHARLES M. EDELEN, Secretary,
I. T. FUGATE, President.

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**Mason:** On account of the state meeting, the regular meeting of the Mason County Medical Society was postponed from September 13 to September 20 at which time a meeting was held in conjunction with the Licking Valley Society. An all-day meeting was held, starting at the Health Department at 9 A. M. with four tonsil cases being operated by Drs. Phillips, Quigley, Samuels, and Hord. Dr. Murphy and Dr. McGuire gave the anesthetics. After the tonsil clinic a group was taken through Hayswood Hospital on a inspection tour and everyone spoke very highly of the hospital.

Everyone then met at the American Legion Hall where an excellent meal was served at one o'clock. After eating, the meeting was called to order by the president, Dr. J. M. Blades, of Butler, Kentucky. Minutes of the previous meeting of the Licking Valley Society were read and the routine business transacted. Dr. Blades then turned the meeting over to Dr. Murphy to introduce the speakers.

First on the program was a short but to the point welcome address by Mayor Andrew Clooney. Judge H. P. Purnell, County Judge of Mason County, followed with a welcome to all of Mason County. After these two addresses everybody felt at home. They had been assured the city and county was theirs while they were here and they could get whatever they wanted while they were here.

Dr. C. C. Howard of Glasgow, Kentucky was then intoduced and gave a most instructive and practical lecture entitled "Thrombi and Emboli." Dr. Howard had just last week been elected President of the Kentucky State Medical Association and everyone present knew the reason of his popularity after he had finished. The meeting was then transferred to the lodge room upstairs, where Dr. David W. Heusinkveld of Cincinnati, was introduced to the society. He gave a most unusual lecture on the diagnosis, treatment, and care of Pulmonary Tuberculosis. He reminded us first that his practice was composed chiefly of seeing tubercular patients in the home the same as we see them and he talked about just how to take care of these patients in the home as we have to do. The lecture was discussed very extensively. Everyone lamented the fact that Kentucky did not have the proper facilities for taking care of the indigent tubercular patients.

Dr. M. A. Gilmore of Hopkinsville, Kentucky, was on the program but was unable to attend on account of illness. The final lecture was delivered by Dr. Gordon McKim, of Cincinnati, his topic being a new operation for Nephroptosis. He illustrated this with a two-reel moving picture of the complete operation. Everyone expressed themselves as having a good time and felt well repaid for having attended the meeting.

The following men were present: R. Lovell Samuel, Maysville, Kentucky; C. C. Howard, Glasgow, Kentucky; W. E. Hord, Maysville, Kentucky; J. M. Blades, Butler, Kentucky; C. W. Shaw, Alexandria, Kentucky; Miss Josephine Meyers, Newport, Kentucky; C. V. Stark, Maysville, Kentucky; C. H. Wallin, Brooksville, Kentucky; O. W. Brown, Lenoxburg, Kentucky; M. H. Davis, Mayslick, Kentucky; H. H. Morgan, Maysville, Kentucky; A. T. Sproull, West Union, Ohio; P. E. Blackerby, Louisville, Kentucky; H. P. Purnell, Maysville, Kentucky; Chas. H. Kendall, Falmouth, Kentucky; Allen F. Murphy, Maysville, Kentucky; B. N. Comer, Falmouth, Kentucky; F. H. Southgate, Fort Thomas; J. M. Southgate, Fort Thomas; L. H. Leonard, Manchester, Ohio; W. H. Cartmell, Maysville; J. H. Hutchings, Maysville; J. C. Norris, Augusta; C. E. Work, Augusta; W. B. Moore, Cynthiana; J. M. Rees, Cynthiana; A. S. Robertson, Flemingsburg; Clyde L. Garr, Flemingsburg; L. T. Lanham, Mt. Olivet; David Heusinkveld, Cincinnati, Ohio; Russell Porter, R. Y. Littleton, Stout, Ohio; John L. Cox, M. D., Vanceburg; J. B. O'Bannon, Mt. Carmel; F. E. Bell, Ludlow; Gustave T. Freith, Newport; C. A. Morris, Covington; J M. Stevenson, Brooksville; W. F. Haley, Brooksville; J. J. Carroll, Augusta; J. P. Wyles, Cynthiana; H. N. Parker, Maysville, Kentucky.

At the next meeting of the Mason County Medical Society, October 11, 1933, Mr. E. H. Sandlin of the Allen Sandlin Laboratories in Louisville will talk on various laboratory products.

ALLEN F. MURPHY, Secretary.

---

**Franklin:** The president, Dr. A. M. Jackson, presided over the regular monthly meeting of the Franklin County Medical Society held at the Capital Hotel, Thursday, October 12th.

The following members were present: Drs. Travis, Baughman, Snyder, Patterson, Darnell, Minish, Jackson, Coleman and Youmans. Dr. B. B. Baughman and Dr. Grace Snyder were welcomed as members to the Society. Minutes of the previous meetings were read and approved.

Mr. Hugh Hudson met with the Society and presented his plan of collecting accounts. A commitee was appointed to investigate the matter and report to the Society later. Dr. Minish offered the following resolution which was adopted by the Society.

Resolved that the Society extend a vote of thanks to the Serafini Drug Company for the manner in which they advertise in the local newspaper by advising the public when ill to consult their family physician.

A copy of the Resolution to be mailed to the Serafini Drug Company. A motion was made by Dr. Snyder, which was seconded by Dr. Minish, that a committee be appointed by the President to arrange programs for each meeting thirty days in advance. Drs. Travis and Snyder were appointed to this committee.

Dr. Darnell had charge of the program. Subject: "Scarlet Fever" which was discussed by several members present. The Society then adjourned to the Hotel Dining Room for lunch.

E. C. YOUMANS, Secretary.

---

**Letcher:** The meeting of the Letcher County Medical Society was held on the regular meeting night, Tuesday, Sept. 26, 1933, with nine physicians present. The program was most interesting as well as beneficial. The following attended: Drs. G. D. Ison, President; B. C. Bach, Owen Pigman, T. M. Radcliffe, Thomas Jennings, T. R. Collier, J. E. Crawford, J. W. Moss and R. Dow Collins, Secretary.

After reading of the minutes and some transacting of business the following program was given: Dr. John W. Moss gave a very good discourse on "Minor Surgery" (as pertains chiefly to a mining industry). This was freely discussed by most every member present. Next was a very instructive paper by Dr. Owen Pigman on "Asthma." This, too, was commented on extensively by all members attending.

Our October meeting will be held at Jenkins, October 31st. A banquet is planned.

R. DOW COLLINS, Secretary.

---

**Franklin:** Franklin County Medical Society will be host to the extension course conducted by the Kentucky State Medical Association under the direction of our former state president, Philip F. Barbour. The program will be conducted by Drs. Owsley Grant and E. F. Horine, Louisville, and these talks will be illustrated by moving pictures and stereopticon slides. Physicians in the contiguous county societies are cordially invited to this meeting which will be held in the Capitol Hotel, Frankfort, on Thursday, November 23.

C. E. YOUMANS, Secretary.

---

**Lawrence:** Dr. N. T. Rice of Blaine, passed to the Great Beyond, December 24, 1932. He was 86 years old, and had served in the Civil War and had practiced medicine at this place for over fifty years. He had been a Mason for 55 years, and served his people faithfully. He graduated from the Louisville Medical College in 1886, and was active in his society as long as his health permitted. His son, C. G. Rice, survives.

---

## BOOK REVIEW

NERVOUS BREAKDOWN, by W. Beran Wolfe, M.D., author of "HOW TO BE HAPPY THOUGH HUMAN," a handbook of commonsense advice, written for the layman by a doctor who not only knows how to treat a nervous breakdown, but who knows how to write about it. Scientifically sound, but written for *you*, so that you can understand and benefit by it, NERVOUS BREAKDOWN is a book the general practitioner can safely put into the hands of his nervous patients—a book for the family of a nervous patient—a book for the man or woman in the throes of a nervous breakdown.

Illustrated with carefully written case histories that not only show how and why the nervous breakdown occurred, but how it was cured, this book will let you look at the structure of the nervous breakdown with the X-ray eyes of a psychiatrist. You will find your case described as accurately as if the author had examined you. NERVOUS BREAKDOWN is written with full sympathy for the tortures of the nervous patient, and written for the man or woman who wants to know how to be normal.

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*INDEX NUMBER*

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## FREE WHEELING IN THE TUBERCULOSIS MOVEMENT

Steadily, for more than a quarter of a century, the number of deaths from tuberculosis has grown less. In 1911 the death rate from this disease, in Kentucky, was 229.5 per hundred thousand population. This rate has been steadily declining and after a period of twenty years we find in 1931 a death rate of only 85.7 per hundred thousand population. Until the beginning of the depression this favorable trend was attributed by health leaders mostly to a general improvement in living conditions among the American people. Other factors, of course, were given due credit, but what could be more logical than to assume that tuberculosis, a disease known for centuries to go hand and hand with poverty, should decline with the rise in wages, better housing, more abundant food and more leisure time?

But suddenly something happened to our prosperity. It buckled a wing or something, and spun off into the most desperate "nose dive" the country has ever seen. No wonder that from various quarters one heard the prediction that the tuberculosis death rate would rise. Actually a strange thing has happened. During the four years of depression deaths from this disease have continued to decline. The record of the past four years stands before us. It gives us no inkling of what may happen in the future, but it is a strange phenomenon. How can we account for it? Have our previous teachings been wrong or is there something unusual about this particular question?

Of all the explanations offered the one which seems the most probable is that the momentum of the tuberculosis movement has been carrying us through just as the free wheeling device on the auto enables the car to speed on for some distance carried only by its own momentum. Thirty years ago tuberculosis was permitted to run its course almost unmolested. Then in 1904 a few courageous doctors dared challenge the old enemy. That praise-worthy act set in motion the popular movement which since then has built in our nation more than six hundred sanatoria, established diagnostic clinics in nearly every community, mobilized an army of public health nurses and broadcast knowledge about tuberculosis to the remotest corners of our country. Kentucky has not been slow to take up this forward movement in the tuberculosis control program and because of the zealous promotion of this wide spread educational campaign the death rate in Kentucky has been cut more than half over a period of twenty years and more than thirty-five thousand lives have been saved. Thanks largely to the money derived from the sale of Christmas seals the movement gained power year by year. Once going, even the drastic economies of these recent times could not, apparently, stop the good effects.

How long the tuberculosis movement can continue on free wheeling no one knows. Certainly it cannot go on indefinitely. In an emergency the American people can do great things. Health departments and sanatoria have continued to function with meager funds. Cheap food, low wages and the loyalty of employees have enabled them to do so. Some doctors and nurses have worked on for nothing more than board and lodging. But that cannot go on. Sooner or later our institutions, inadequate as they are to meet the demands made upon them in good times, if not properly supported will have to close their doors. The patients will be thrown back on their helpless communities soon to die. Well people compelled to live with them will be in danger of getting the disease. Without the watchful care of the public health nurse, the intense interest of the family physician, the co-operation of social leaders and educated parents the control of the spreaders will relax and more disease will follow. And so with the other measures necessary to keep a controlling hand over tuberculosis. On an up grade free wheeling is no good whatever.

Health is won by a long-time planning. Eternal vigilance is the price one must pay for health. Tuberculosis does not kill immediately. Nor can it be kept down by occasional spurts of energy. Only by steady progress can we hope to over come it.

The object of tuberculosis associations is to keep the tuberculosis machine running—smoothly and powerfully. Lost momentum must be regained. The end of the hard journey to the place where every family can be assured of safety against tuberculosis is not yet in sight. If we roll back now our children will have to re-travel much of the hard rough road over which we have come, and in the meantime many of them will sacrifice their lives. Harsh economy must no doubt still be practiced, but when health is at stake penny pinching is expensive business and leads only to more expense. A quick pick-up is the order of the present day. Christmas seals stimulate health work of all kinds and furnish the power to carry on the fight against tuberculosis.

---

## THE POST GRADUATE LECTURES IN OBSTETRICS

Kentucky is to be congratulated upon the degree of interest manifested in the series of post-graduate lectures on obstetrics delivered, at different points in the State during the past summer, by Dr. J. R. McCord, Professor of Obstetrics at Emory University, Atlanta, and Consultant in Obstetrics of the United States Children's Bureau at Washington. The reception accorded Dr. McCord's course by physicians, not only bears testimony to the progressiveness of the medical profession in the State, but also augurs well for the cause of maternal welfare in the Commonwealth.

This lecture course constitutes a part of the maternal program of the Bureau of Maternal and Child Health of the State Board of Health and is sponsored jointly by the Board, the Kentucky State Medical Association and constituent county medical societies and the Children's Bureau at Washington. It was first inaugurated in the summer of 1931, at which time two series were held, each lasting a week, from Monday until Friday, inclusive. During the past summer the series totaled seven in number and were given at different points in the State, so selected as to render them accessible to a maximum number of physicians.

In 1931, the attendance was seventy for the two series; in 1933, it aggregated three hundred and eighty-nine for the seven series. This means that a total of four hundred and fifty-nine physicians in Kentucky have so far availed themselves of the opportunity presented by Dr. McCord's lectures to review the most up-to-date methods of obstetrical procedure. These physicians represented seventy-nine of the one hundred and twenty counties in the State, which means that about two-thirds of the Commonwealth has now been covered. This, however, does not fully measure Kentucky's interest in postgraduate obstetrical work. Several requests by county medical societies for the lecture course could not be granted because Dr. McCord's services were in such demand throughout a large section of the country that he could not spare further time.

The medical profession of Kentucky considers itself very fortunate in the opportunity afforded by Dr. McCord's lectures to keep itself fully abreast of the times in that field of medicine which has made particularly rapid strides in recent years. It is hoped that next summer Dr. McCord's engagements will be such as to enable him to deliver additional and more numerous series of lectures in Kentucky.

---

## AMEBIC DYSENTERY

The attention of our readers is called to the Editorial on Amebic Dysentery Epidemic in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION for November 18, and to the three preceding articles, one on The Health Hazard of Amebic Dysentery by Herman N. Bundesen, the distinguished Health Officer of Chicago, another on The Threat of Amebiasis in the Food Handler by Tonney, Hoeft and Spector, and the third an Editorial Review of Amebic Dysentery.

These articles are particularly timely in view of an extensive epidemic of this serious disease spread by food handlers in a Chicago hotel.

Amebic Dysentery is becoming more common over the whole country. It can only be diagnosed by careful and repeated laboratory examinations. Numerous failures of diagnosis are reported and a number of these patients were operated on, naturally, with fatal results. Every physician in Kentucky should read these articles carefully.

This study of amebiasis is an example of the great work that is constantly being done by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. It is inconceivable how a man can permit himself to continue in the practice of medicine without having this weekly review of current medical knowledge come to him. No one practitioner will probably read all of the articles in any single issue, but in every issue there is some one article of such value that it should always be on hand for ready reference.

## ORIGINAL ARTICLES

# INDICATIONS FOR CESAREAN SECTION FROM SURGEON'S VIEWPOINT*

D. P. Hall, M. D., F. A. C. S.

Louisville.

The greatest number of Cesarean Sections at present are done by the general surgeon with the co-operation of the general practitioner; and, at times after consultation with the obstetric specialist. It follows, that both the surgeon and practitioner should have a clear understanding of the indications and conditions to which Cesarean Section is applicable. As a surgeon, I feel it may not be amiss to present to this body a brief resume of the indications for Cesarean Section, with some statistics by which we may be guided.

That there has been an increase in the number of Cesarean Sections in the last decade, there is no doubt; but there has also been a marked improvement in the morbidity and mortality rate which is due to the more careful study of the indications, by the average surgeon and obstetrician. It has not been many years past since Cesarean Section was used only after the patient had been rendered "hors de combat" after repeated attempts at delivery by forceps or version and the surgeon was then called to do a Section on an infected and traumatised patient, which operation too often terminated in peritonitis, sepsis and death. At present, it should be difficult to interest a conscientious surgeon in operating on such a case.

In major pelvic surgery there is no procedure that carries a higher maternal mortality, more especially when the indications and type Cesarean Section suitable for each case are not studied carefully. The maternal mortality reported in four metropolitan sections of the United States in 4,556 Cesarean Sections is rather high:—

| | No Cesarean | Maternal Deaths | Per Cent |
|---|---|---|---|
| Cleveland ............ | 1047 | 75 | 7.2 |
| Brooklyn ............. | 1805 | 128 | 7.0 |
| Los Angeles............. | 1550 | | 7.0 |
| Detroit ................. | 154 | 20 | 13.0 |

During 1928 in Germany there were reported 4,450 Cesarean Sections with a maternal mortality of 316, or 7.1 per cent.

We have used the following indications in those cases referred to us for Cesarean Section, realizing that in all, judgment must be used. However, few of us have attained that perfect judgment which has left us without regrets.

1. Definite head and pelvic disproportion.
2. Placenta praevia centralis.
3. Abruptio Placenta.
4. Cardiac Disease, in primipara with Pelvic Deformity.
5. Pulmonary Tuberculosis in primipara with pelvic disproportion.
6. Pre-eclampsia in a selected few where patient has failed to respond to intensive treatment of physician or obstetrician.
7. Obstructing growths, uterine fibroids, ovarian cysts, exostosis of pelvis.
8. Severe kidney infection in a selected few, with hypertension and toxic manifestations which have not responded to conservative measures of physician.
9. Habitual death of fetus at or near term may become an indication.
10. Rigid cervix—non-dilatable, also in cases where cervical amputation or extensive recent repair of genital fistula has been made.
11. Malignancy of cervix.

During a ten year period, from 1922 to 1931, there occurred 182 Cesarean Sections in the Royal Free Hospital, London, with a maternal mortality of 3.6 per cent. (See Fig. I).

The following information (Figs, II, III, IV, and V) from five private hospitals in Louisville, shows 1697 births, with 48 Cesarean Sections, and maternal deaths of 3, but primarily we may see the indications used in 48 Cesareans and note the greater number being done for pelvic deformity, placenta praevia and eclampsia.

The insanity of uncertainty will exist in both physician's and surgeon's mind as to when he is to do a Cesarean Section in cases of contracted pelvis, so long as he holds to the old dictum of certain measurements of the pelvis are absolute indications for Cesarean Section; yet, many of you have had such cases go through self-delivery. Conversely you have observed cases with more favorable measurements, progress to an impossible labor. Pelvic measurements at the best, may be very inaccurate. It has seemed to us this uncertainty may best be clarified if the physician permits his patient a trial labor without undue vaginal examinations, then should self-delivery prove impossible perform a Cesarean before the patient has become fatigued.

Figure 1

182 Cesareans—Royal Free Hospital with a Maternal Mortality of 3.6%

| | |
|---|---|
| General Contracted Pelvis.................... | 64 |
| Flat Pelvis ............................................ | 11 |
| Flat Contracted Pelvis........................ | 19 |
| Cephalo-Pelvic Disproportion................ | 32 |
| Asymetrical Pelvis.................................... | 9 |

---

*Delivered before the Kentucky State Medical Association, at Murray, September 11, 12, 13, 14, 1933.

| | |
|---|---|
| Breech with Extended Legs | 6 |
| Transverse Presentation | 5 |
| Placenta Praevia | 11 |
| Heart Disease | 13 |
| Fibroids | 6 |
| Bony Tumors | 1 |
| Rigid Cervix | 2 |
| Eclampsia | 1 |
| Double Uterus | 1 |
| Hydrocephalic Head | 1 |

Figure II
August 1, 1932 to August 1, 1933

| | No. Births | No. Cesarean Section |
|---|---|---|
| S. S. Mary & Elizabeth Hospital | 512 | 6 |
| Norton Infirmary | 159 | 5 |
| St. Joseph's Infirmary | 285 | 6 |
| St. Anthony's Hospital | 329 | 9 |
| Kentucky Baptist Hospital | 244 | 15 |
| Deaconess Hospital | 168 | 7 |
| Total | 1697 | 48 |

By Whom Done—Surgeons .......... 41
Obstetricians .......... 7

FIGURE III

| Indications | Method | Anesthetic | Attempt at Norm. Deliv. | Forceps Used | Elective | Complications | Deaths |
|---|---|---|---|---|---|---|---|
| **Cephalo Pelvic Disproportion** | | | | | | | |
| No. 1 | Classic Abdom. | G.O.E. | Yes | No | | None | No |
| No. 2 | Classic Abdom. | G.O.E. | Yes | No | | None | Maternal Death in 1 hr.—Shock |
| No. 3 | Classic Abdom. | G.O.E. | No. | No | Yes | None | No |
| No. 4 | Classic Abdom. | G.O.E. | Yes | No | | None | No |
| No. 5 | Low Cerv. Phaneuf | G.O.E. | No | No | Yes | None | No |
| No. 6 | Low Cerv. Phaneuf | GO.E. | No | No | Yes | None | No |
| No. 7 | Porro's | G.O.E. | | | Yes | None | No |
| | (Bicornuate Uterus; had had previous Cesarean.) | | | | | | |
| **Contracted Pelvis** | | | | | | | |
| No. 1 | Classic Abdom. | G.O.E. | Yes | No | | Paralytic ileus | No |
| No. 2 | Classic Abdom. | Ether | Yes | No | | None | No |
| No. 3 | Classic Abdom. | G.O.E. | No | No | Yes | None | Baby died 15 hrs. after oper. |
| No. 4 | Classic Abdom. | Local and Gen. | No | No | Yes | None | No |
| No. 5 | Classic Abdom. | G.O.E. | No | No | Yes | None | No |
| No. 6 | Classic Abdom. | G.O.E. | No | No | Yes | None | No |
| | (Had had two previous Cesareans.) | | | | | | |
| No. 7 | Classic Abdom. | Gas Oxyg. | No | No | Yes | None | No |
| No. 8 | Classic Abdom. | G.O.E. | No | No | Yes | None | No |
| No. 9 | Classic. Abdom. | G.O.E. | Yes | Yes | | None | No |
| No. 10 | Classic Abdom. | Chlor. | Yes | No | No | None | No |
| No. 11 | Classic Abdom. | G.O.E. | Yes | No | No | None | No |
| No. 12 | Classic Abdom. | G.O.E. | No. | No | Yes | None | No |
| No. 13 | Classic Abdom. | G.O.E. | No | No | Yes | None | No |

Figure 3

FIGURE IV

| Indications | Method | Anesthetic | Attempt at Norm. Deliv. | Forceps Used | Elective | Complications | Deaths |
|---|---|---|---|---|---|---|---|
| **Placenta Praevia Centralis** | | | | | | | |
| No. 1 | Classic Abdom. | Spinal | | | Yes | None | No |
| No. 2 | Classic Abdom. | Ethylene | | | Yes | None | No |
| No. 3 | Classic Abdom. | Local & G.O. | No | No | Yes | Pyelitis | No |
| No. 4 | Classic Abdom. | G.O.E. | | | Yes | None | No |
| No. 5 | Davis-High | G.O.E. | | | **Yes** | **None** | **No** |
| No. 6 | Classic Abdom. | Spinal | No | No | Yes | None | No |
| No. 7 | Classic Abdom. | G.O.E. | | | Yes | None | No |
| No. 8 | Classic Abdom. | G.O.E. | | | Yes | None | No |
| **Eclampsia & Pre-Eclamptic** | | | | | | | |
| No. 1 | Classic Abdom. | Spinal | No | No | | | Mother died—Baby survived. |
| No. 2 | Classic Abdom. | G.O.E. | | | | | No |
| No. 3 | Classic Abdom. | G.O.E. | | | | | No |
| No. 4 | Classic Abdom. | G.O.E. | | | | | No |
| No. 5 | Classic Abdom. | G.O.E. | | | | | No |
| No. 6 | Classic Abdom. | G.O.E. | | | | | No |
| No. 7 | Classic Abdom. | Local & G.O. | No | No | Yes | None | Child Died |
| **Bandel's Contraction of Ring** | | | | | | | |
| No. 1 | Classic Abdom. | G.O.E. | Yes | No | | None | No |
| No. 2 | Classic Abdom | G.O.E. | Yes | No | | None | No |

FIGURE V

| Indications | Method | Anesthetic | Attempt at Norm. Deliv. | Forceps Used | Elective | Complications | Deaths |
|---|---|---|---|---|---|---|---|
| **Ablatio Placenta** | | | | | | | |
| No. 1 | Classic Abdom. | G.O.E. | No | No | Yes | | Child died in 3 hrs. |
| **Fibromyoma of Uterus** | | | | | | | |
| No. 1 | Abdom. Porro's | G.O. | **No** | No | Yes | None | No |
| (Had had two previous vaginal Cesareans with dead babies) | | | | | | | |
| No. 2 | Porro's | **G.O.E.** | **No** | No | Yes | None | No |
| **Atresia of Cervix** | | | | | | | |
| No. 1 | Vaginal | G.O.E. | Yes | No | No | None | No |
| No. 2 | Classic Abdom. | G.O.E. | Yes | No | | None | No |
| **Myocarditis** | | | | | | | |
| No. 1 | Classic Abdom. | Ethlylene | No | No | Yes | None | No |
| **Large Baby** | | | | | | | |
| No. 1 | Classic Abdom. | G.O.E. | Yes | Yes | No | Pyelitis | No |
| **Intestinal Obstruction** | | | | | | | |
| No. 1 | Classic Abdom. | Ether | No | No | Yes | None | No |
| **Hypertension with Large Baby** | | | | | | | |
| No. 1 | Classic Abdom. | G.O.E. | No | No | Yes | None | No |
| **Transverse Position—Dead Fetus** | | | | | | | |
| No. 1 | Classic Abdom. | G.O.E. | Yes | Yes | | | Maternal Death and Fetal Death |
| **Hyperemesis Gravidarum—in 4 Pregnancies—Sterilization** | | | | | | | |
| No. 1 | Classic Abdom. | G.O.E. | | | Yes | | No |

Eclampsia has proven the battle ground for many surgeons and obstetricians for the past twenty years, as to the value of Cesarean Section compared to more conservative methods. There seems to be no rational argument against Cesarean Section in those cases of eclampsia with a thick resisting cervix which remains so after attempts at forcible dilatation have failed. Certainly the patient receives more trauma and depression from efforts at pulling the fetus through a partially dilated uterine canal than should occur from a quick clean Cesarean Section. I am sure most obstetricians will disagree with the latter; but before they disagree too loudly I would refer them to the statistics of the Joseph Price Hospital, Philadelphia and the London Maternity Center.

The opinion of the greatest majority of obstetricians and surgeons relative to placenta praevia, seems to concur that Cesarean Section offers the least mortality to both mother and child. Time does not permit of more discussion of the lesser indications in which judgment plays so great a part.

With the indications for Cesarean Section, the surgeon must choose what type section indicated in each case. Classic Conservative Abdominal Cesarean Section, which has been employed from the time of Sanger, has remained the most generally used by the greater number of surgeons. In the past few years, many modifications of Frank's extra-peritoneal Cesarean Section have been devised—notably those of—Kronig, Beck, DeLee and Phaneuf, which all consist essentially of avoiding peritoneal cavity and opening the uterus in the lower uterine segment. The claims made are that this type procedure may be used in potentially infected cases and the resulting uterine scar is stronger with a lower incidence of ruptures in subsequent pregnancy.

The Porro's Cesarean Section, which is a Cesarean Section of the Classic type, followed by Supra-vaginal Hysterectomy, finds its place in those cases with large or at times multiple fibromyomata.

Recently, the Portes type of Cesarean operation has been used for known infected cases, which consists of eventration of the uterus after removing fetus and placenta, suturing the abdominal wall around uterus and thus leaving uterus extra-peritoneal for four to five weeks, at which time it is replaced. This procedure, I deem distinctly non-surgical—there are not enough statistics available for one to draw a final conclusion as to its merits.

Safe surgery in Cesarean Section is not a matter of mere chance any more than it is of complex details. It is first a matter of sound principles, second a matter of their application of those principles. The responsibility of their application may in the final analysis be the responsibility of the individual surgeon. Let him see to it, that he weighs all indications, and employs the operation of Cesarean Section where it is best fitted, because the heavy task of making surgery safe rests on the surgeon's shoulders.

## DISCUSSION

**J. B. Lukins, Louisville:** Mr. President and Gentlemen: It seems to me that there is no surgical emergency that requires sounder judgment than that of cesarean section. When we as surgeons are called in consultation in a case of prolonged delay of labor, we need to think quickly and to think as accurately as possible and to call into play our very best judgment.

We are all ready and willing to open the abdomen in a case of gangrenous appendix or accurate intestinal obstruction, in fact we would censure ourselves and would be blamed by the family and other physicians in attendance if we did not open the abdomen and do it immediately. But how long do we wait in a case of obsterics where we have impending complications, perhaps complications already present?

We have all been a little amused at the story that is told on the surgeon who was in the operating room, all washed up, his gown and sterile gloves on, the nurses all ready, the anesthetist present, and the patient was being transported to the hospital in an ambulance and was on the elevator going up to the operating room and gave birth to the baby. This little incident is related to draw attention to the idea that is entertained by some doctor that entirely too many cesarean sections are done. I doubt the truth of this statement, for, on the other hand, I question if enough cesarean sections have been done. Aseptic surgery has changed a great many things, and the result in complicated obsterical cases where cesarean section is resorted to, even with moderate skill, is one of these things that has been changed materially. If we do our duty, if the general practitioner or the man who sees the case first will see the light and recognize his duty, the statistics as presented by Dr. Hall will be very materially improved in the next few years.

It almost goes without saying that in a case where there is marked disproportion between the size of the baby's head and the bony pelvis of the mother, cesarean section is indicated. This is also probably true of real placenta praevia centralis.

There are two indications that were mentioned in the essay that I think deserve some emphasis. I refer, first, to organic heart lesions. I can recall at least two cases that I have seen in consultation, with slightly decompensated hearts, with full-term pregnancy, in which I did not advise cesarean section or forcible delivery. Both of these cases died later. Of course, there is no way of knowing positively that had I done a cesarean section it would have saved the life of the mother, but I firmly believe that I would have done so in both cases.

Most of us have held to the opinion that eclampsia is not a true indication, at least one of the best indications, for cesarean section, that if we see the case in the pre-eclamptic state and the patient is not too edematous and the kidneys are in farily good condition, we might attempt a cesarean section. If I may be pardoned, I may say that I think two of these cases that Dr. Hall reported in the Louisville Hospital in the last eighteen months were mine. Both of these cases, one of them particularly, were cases of well developed eclampsia; one had three hard convulsions, the kidney output was bad, cesarean section was done rapidly with excellent results, saving both the mother and the baby. The other case was a woman who was overly fat, with a slightly bad heart, and the cesarean section was advised and accepted by the family. The results were rather gratifying, althougn we had several complications before she left the hospital, but today the mother and child are both living and well.

The danger in cesarean section is not the operation; it is the amount of trauma that has been done, or the amount of infection that has been carried into the birth canal before the surgeon sees the cases. Nine times out of ten that is true.

We have heard a great deal from our obstetrical friends about the test of labor. This is a condition that we all respect, or an opinion that we have the greatest respect for, and I agree with Dr. VanZandt that in most cases, perhaps in many cases, this should be advised, but if we are as good doctors as we think we are or as we claim to be, why can't we recognize conditions and advise cesarean section in time to save the mother before infection takes place or before the heart is too bad to offer anything in the way of safe delivery?

For the successful termination of cesarean section, I repeat that sound judgment and quick thinking are absolutely necessary, and I would add to this, moderate skill and a little conscience thrown in.

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**Wound Healing in Anterior Gastro-Enterostomy.**—Marztloff and Cuckow present a study based on experimental observations on forty-four dogs, which they undertook in order to determine whether serosal cysts would form between apposed peritoneal surfaces and also what differences, if any, occurred in healing following the use of various suture methods.

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# CANCER OF THE BREAST*

W. O. Bullock, M. D.

Lexington Clinic, Lexington.

In 1900 in the registration area of the United States there were 1400 deaths from cancer of the breast; the rate per 100,000 was 4.5. In 1910 there were 3,730 deaths; the rate was 6.9 per 100,000 (Frederick L. Hoffman). In 1920 the rate per hundred thousand was 7.6 and the number 6,570. In 1930 the rate was 9.2 and the number of deaths from cancer of the breast had reached 10,912 (American Society for the Control of Cancer).

It has long been known that primitive races are relatively immune to malignant disease. Dr. O. H. Pinney, who spent ten years on the Equatorial West African Coast, tells me that in all the time he was there he did not see a single case of cancer of the breast among the natives and that his experience was that of other medical men in like position. Yet the Negro after his translation to other parts and having adopted the food and habit of western culture is, if anything, slightly more susceptible to cancer of the breast than the white woman. Speculating on the cause of this phenomenon I will ask you to consider the following facts.

First: It was formerly thought that the breast was an organ having certain periods of change which occurred just after birth, at puberty, during pregnancy, lactation, involution, and senile atrophy; that between these periods the breast was a quiescent structure physiologically inactive. Within the past ten years study of the endocrine glands has revealed that under the influence of certain of the ovarian and pituitary hormones, cystic changes are constantly taking place in the acini of the breast between puberty and the menopause and they are just as regular as the menstrual cycle with which they are connected.

Second: That disturbance of the hormonal balance predisposes to cancer of the breast is the experience of many.

Third: That the male breast which is not so influenced normally is seldom involved (plus or minus 1%).

Fourth: That stagnation of the products of activity of the acini is probably a factor in the production of cancer of the breast is emphasized by Ewing and other pathologists and it is interesting here to note that Fabricius Hildanus, 1646, speaks of "Scirrus incipiens ex lacte coagulata."

Fifth: That malignant or premalignant

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*Delivered before the Kentucky State Medical Association, at Murray, September 11, 12, 13, 14, 1933.

cells on the nipple or the activating element may travel down the duct into the smaller ducts or from them upward to the nipple is probable in Paget's disease.

Sixth: That a study of the mortality statistics of cancer throughout the world (Hoffman) seems to show that cancer of the breast is less prevalent among the races who wear loosely fittng garments or none at all above the waist. All of these facts and inferences lead me to venture the opinion that compression of the breast by clothing, the brassiere, and the corset, dictated by fashion or to insure greater freedom of movement, may be an important factor in the preponderance of cancer of the breast among the races who have adopted the costume of western civilization. Nor do I believe that it is a fortuitous accident that the higher rates for breast cancer are in the higher latitudes of the northern hemisphere nor the rate for alpine Switzerland twice that for sunny Italy; nor the relative immunity of the Japanese woman of the last generation with her loose fitting garments, though racial tissue resistance may here play some part. This theory, of course, is not intended to explain the progressive increase in cancer of the breast although it may have some bearing upon it and may point the way to its reduction.

To illustrate some phases of this problem from the standpoint of the surgeon I shall present a few cases from my own experience.

Case 1. S. P., Lexington, Ky. Trained nurse, single, 46. Since 1910 patient has suffered many ills, both physical and mental, including cyst of left breast which was excised by me in 1914. On March 22, 1930 I find this note "dull pain in left axillary region and numbness of left arm." On June 23th note "aching down inner surface of left arm—breast and axilla negative." On September 8th "for a week has had pain in left shoulder, axilla, and left breast pain worse at night, driving car causes pain in these areas. Tenderness in supraclavicular fossa, left axilla, left side of chest and breast." (nothing else).

Six weeks before admission to hospital patient noticed a lump in left axilla which has been quite painful and has increased in size quite rapidly. On admission breasts, which are heavy and fat reveal no masses to the examining finger. The left breast is tender all over. The left axilla is the seat of a large mass of glands, some of which appear discrete. On December 29, 1930 one of these glands was dissected cleanly from the axilla under novocain anaesthesia. It was about one inch in diameter. Dr. E. S. Maxwell's report was metastatic carcinoma (no differentiation is apparent).

On January 2, 1931 radical mastectomy was done. Operative note reads, "A chain of hard glands runs up to the apex of the axilla. No tumor can be felt in the breast."

From the pathologist's report we read, "Careful search of the breast reveals a diffuse 3 cm in diameter. It is difficult to determine where the tumor began for the outline blended gradually with the surrounding breast tissue."

Within two weeks a mass of supraclavicular glands could be felt. Post-operative X-ray therapy did nothing to check the progress, which proceded to involve successively the lymph nodes of the opposite side, the other breast, the spine, and the abdominal viscra, the patient dying eight months after operation without the slighest relief of any kind.

There is a small group of cases of breast cancer of which this is one in which the first symptoms of the disease are those produced by the metastases, the original growth being so small as to defy detection. Structurally, these tumors are highly anaplastic and are of the type frequently seen in Schimmelbusch's disease. Cure in this group of cases following operation is rare but it does sometime occur and unless the superclavicular glands are already involved, radical operation and x-ray therapy should be carried out. Had manestectomy been done in 1914 instead of excision of the cyst, this patient would be alive today.

Case II.—T. P. P., Lexington, Ky. White man, 59 years. Has had symptoms of diabetes for 10 years and has been under treatment since 1922. Six months prior to operation noticed a lump in right breast under nipple. Thinks it has increased in size recently. The lump is hard, movable, and not fixed either to the skin or to the underlying muscle. Axillary nodes doubtfully palpable. Chest negative for metastases. Operation September 19, 1929—radical Halsted operation with post-operative radiation. Wound healing without incident; sugar metabolism satisfactorily controlled. To date patient shows no sign of local or metastatic recurrence.

Cancer of the breast in the male occurs with a pretty constant ratio of 1 to 100 compared with the female. Three such have come under my observation including the one here reported. The cause of its rarity in the male may be merely the relatively small amount of tissue in the male. In this event the discrepancy of incidence would be much less than is actual. In fact, if the number of cells were compared, cancer in the male would be relatively more frequent than in the female.

If regarded as a unit, then the factors I have already mentioned would explain the difference. Namely, its physiological inactivity and its freedom from compressive clothing.

Case III.—Mrs. C. H., Mt. Sterlng, Ky. White, age 34, 4 para—youngest twins, 6 months old—nursed babies until 3 weeks before comng to hospital. First noted painless lump in right breast nine years ago. This has never given any symptoms. In past six months or since confinement there has been an increase in size and another growth has appeared close to the original tumor—no pain or other symptoms except apprehension.

Patient is a vigorous, buxom matron, healthy in every respect except that in the right breast there exists two hard tumors close together in the upper inner quadrant approximately the size of a walnut and an almond. No adhesion to skin. No fixation or retraction of nipple. No palpable axillary nodes. Operation June 19, 1917—excision of tumor. On gross section it appeared definitely malignant. Patient's pulse became rapid and irregular, so I did a rapid amputation of the breast, removing the pectoral fascia and the superficial fibers of the underlying pectoral muscle. The axilla was cleaned out. Dr. Warthin's report on tissue was medullary carcinoma. Recovery uneventful. She had another baby 18 months later and has been well ever since (16 years.) At the present time she shows no signs of local recurrence or metastasis. In view of this fact I thought it best to recheck the pathological findings. The following is from Dr. Weller's letter:

"The sections from the breast and axillary lymph nodes from Mrs. C. H. are available in our files and I have reviewed them. Dr. Warthin's diagnosis under date of July 10, 1917, was medullary carcinoma, far advanced—metastases in lymph nodes. I concur in this diagnosis in every respect. The carcinoma is slightly adenocarcinomatous in architecture, and I would expect it to be a relatively malignant type. There are two large lymph nodes represented in our material and only one shows metastases."

Burton J. Lee, (Am. Jour. Surg., May, 1933) states that Sistrunk and McCarthy have never seen a five year survival where mammary cancer developed during pregnancy or the period of lactatien. That Harrington feels that operation is unjustifiable in the presence of pregnancy, concluding his remarks on this phase of breast cancer as follows: "The prospect of permanent cure of the disease in the presence of pregnancy or lactation appears very remote. We feel, however, that radical surgery and therapeutic abortion combined with preoperative and postoperative irradiation are probably the best methods of attack in a certain proportion of these cases." Of Dr. Lee's eight reported cases all died or had recurrence before five years. Only one lived as long as six years.

At variance with the statements just quoted we find Kilgore (A. R.) reporting 49 cases of lactation cancer of the breast with 8 recoveries lasting 4 1-2 to 21 years, 3 of them 18, 20 and 21 years.

Hippocrates was right when he said: "Experience is fallacious and judgment difficult."

Case IV.—Miss E. W., Paris. White, age 54, practical nurse. July 26, 1906. Noticed lump in upper outer quadrant of right breast about six months ago. No pain or other symptoms except presence of the mass which has increased in size since first observed. Axillary glands are palpable. Operation July 27, 1906. Radical Halsted operation. Flaps did not completely cover raw surface. Progress satisfactory—healing by granulation.

On March 5, 1926 patient returned with history that six months ago had pain in right chest and soreness along ribs. Shortly afterwards noted a swelling in painful area which gradually increased. Mass tense, fluctuant, adherent to ribs, lies above and to inner side of scar. On March 11, 1926 the mass was excised with cautery and found to involve the ribs and pleura—extensive diffuse bleeding controlled by cautery and packing. Left hospital April 1st—returned home. Dying on May 7, 1927, almost 21 years after operation.

Here we have a case which would have been a 5-10-15 and, if she had gone six months longer, a 20 year cure in any series.

The questions naturally arise: Is cancer ever cured and was this a recurrence of the original tumor or was it an independent growth? Dr. Warthin's report which was "Medullary carcinoma, probably secondary from original breast tumor" should be taken at its face value. Not a few such cases are on record where cancer cells lying circumscribed and dormant awake to activity under the stimulus of trauma. Just what in this instance caused the sudden awakening of the sleeping cells was not ascertained.

Case V.—Mrs. A. W., Age 56. O para. Admitted to the Good Samaritan Hospital December 7, 1911. suffering with cancer of the left breast. The cancerous mass involved the entire breast with a mass almost as large as a tennis ball in the upper inner quadrant, the skin over which was red where it had not been broken down by ulceration. This was associated with the offensive odor characteristic of such ulcers. The axilla was well supplied with enlarged lymph nodes. On December 8, 1911 I did a radical mastectomy to relieve her of her loathsome burden wthout any hope of cure. Four years later I was much surprised to hear her wheedling voice over the phone telling me that she had eaten some greens and that they had disagreed with her. At that time she was apparently free from disease I think, however, she died shortly afterward but of what cause I do not know.

When metastasis from cancer of the breast appears within a year after a properly performed radical operation it means that at the time of the operation the disease had already transgressed the limits of operability. Certainly some of these cases by more thorough radiographic study can be spared an unnecessary operation. But here the economic factor steps in to limit the full exercise of our resources. A complete x-ray study of the chest and osseous system calls for the outlay of more money than many can afford. However, the occasional salvaging of apparently hopeless cases, such as two of those here reported, have led me to operate on all cases not showing supraclavicular nodes, pulmonary metastases, fixation of the growth to the chest wall, signs or symptoms of involvement of the nervous and bony systems, and abdominal viscera. Nor do I regard diabetes or advanced age as a contraindication and in the presence of other diseases, which will ordinarily permit a few years' survival, I proceed as I would were such diseases not present. Such a course naturally may not be pursued with out paying the penalty of a higher death rate for operation and a lower percentage of five year cures, but I regard the result in the single case of Mrs. C. H. as far outweighing in value the rather high percentage of recurrences and deaths in this series. Sampson Handley says on this point. "If the accumulation of strikingly favorable statistical results were a legitimate primary aim, there can be no doubt that operation should be refused in all but early cases. But in each case as it comes before him the surgeon has to consider solely the interest of the individual patient concerned, not only in regard to cure, but in regard to prolongation of life. Now that the immediate risk is so slight, it is unfair to refuse operation unless the case is evidently hopeless."

The question of so-called premalignant lesions of the breast is one of controversy which is far from being settled. It is extremely difficult to reconcile the views of various writers on the subject of so-called cystic mastitis, intracanicular papilloma, and incipient Paget's disease, and the so-called Schimmelbusch or Reclus disease, beginning as a proliferative hyperplastic duct cyst at the age of twenty, developing papillomata at the age of forty and cancer at the age of sixty. Cheatle and Cutler go at lengths to emphasize the fact that 20 per cent of all cancers of the breast originate in this manner. Bloodgood on the other hand has observed hundreds of cases of such cystic conditions over a long period of time and has never seen one develop carcinoma.

Paget's disease of the nipple in which an eczema-like crusting of the nipple is a constant findings invariably, if left alone, develops cancer, not only in the nipple, but also in the breast. This is treated by Bloodgood not by mastectomy but by cleaning up and healing the crusted nipple without having cancer develop.

Intracanicular papilloma frequently associated with bleeding from the nipple and, as we have seen, is one of the stages of Schimmelbusch's disease, is regarded as a benign condition treated by local excision or left alone; nor does he even operate on cases of bleeding from the nipple without palpable tumor, although all writers are in agreement that in 50 per cent of all cases presenting this symptom cancer is present.

Where then must the surgeon take his stand? If he takes the position of Bloodgood and his school, he will most surely lose his chance of curing some cases of cancer. If he takes the view of those who claim that 20 per cent of the cases of cancer begin as so-called cystic mastitis, he will unquestionably perform a good many unnecessary operations. There are four ways of advising a woman who comes to you with a lump in her breast:

First, and formerly more common than now, was to pooh-pooh the idea of cancer and set her mind at tragic rest.

Second—The watchful waiting policy---tell her to come back in one, two, or three months to see if there has been any change in its appearance.

It is needless to condemn these courses. Their inherent wickedness is too apparent and yet I shall not say more—to err is human.

The third way is to advise your patient that all lumps in the breast are potentially malignant and that immediate removal of the breast or excision of the tumor under control of the pathologist's opinion, including frozen section at the time of operation, is the safest course to pursue.

The fourth is what may be called the esoteric system. Here our superman can advise that the patient in certain cases may safely keep her breast and her lump for his vast experience has told him that her particular kind of lump never becomes malignant.

My own practice is described in the third method. Exceptions are age less than 17 or

18, the so-called "shotty breast," and obvious inoperability.

The fetish of saving the breast in doubtful cases is one that may be safely worshipped only by those who have devoted a lifetime to the intensive study of diseases of the breast and even then, as Oliver Cromwell once said, "In the bowels of Christ, Gentlemen, think, we may be wrong." I have never known a woman to regret the loss of a breast as it meant to her dispelling the incubus of cancer phobia. In the case of a woman of 35, whose mother and three sisters had died of cancer of the breast, I removed both normal breasts at her request. She is now a happy amazon free from her mortal dread, doing useful work for her community.

X-ray: Up to within the last few years figures from the larger cancer clinics were unconvincing as to the value of x-ray in the treatment of breast cancer, either as preoperative, post-operative, or both. At the present time, however, it is generally conceded that results are better if the patient is given the benefit of both. Considerable progress has been made in the technique of x-ray therapy and results are improving and the work of Keynes in England is a matter of much interest. Whether the surgeon will have to relinquish the breast to the roentgenologist as he has given up the cervix to radium; whether radiation of so-called chronic mastitis and other pre-cancerous lesions of the breast will lead to further limiting the work of the surgeon, is for the future.

## DISCUSSION

**Wallace Frank,** Louisville: So much has been presented in this paper of Dr. Bullock's that it is right hard to get any place from which to start. The problem which he presented toward the end of his paper, "What should we do with the woman with a lump in the breast," is a problem which sooner or later comes to every practitioner and every surgeon. I agree with him that all solid tumors should come out immediately, regardless of the age of the patient, regardless of all other considerations.

How are you going to tell which ones are solid and which are not? I was rather surprised that Dr. Bullock did not bring that out in his paper, as by the use of transillumination one can absolutely determine whether one has a cyst in the breast or whether it is a solid tumor. Cysts which contain blood show very similar to solid growths. Cysts which contain blood are, as a rule, the papillomatous cysts, of which, as he stated, fifty per cent become malignant, and it is a question whether a larger per cent than that do not actually undergo cancerous change.

I am absolutely convinced that Bloodgood, in the last year and a half, has changed his idea that most cases of so-called cystic mastitis are benign. He is beginning to take up the view which has been expressed by Cheatle and Cutler, and which Dr. Louis Frank expressed before the Southern Medical Association some fifteen years ago, that the type of breast with chronic mastitis in which the epithelium in the canals, in the duct system, begins to proliferate is the dangerous one and in many cases undergoes malignant change.

To give you an instance of how well transillumination may show things in the breast, within the past four months a patient with exceedingly large breasts came into the Norton Cancer Clinic on account of discharge from one breast. Bimanual examination done by four different men showed no tumors. By transillumination half a dozen small, dark areas were shown in that breast, and in the other breast even more of them. Amputation of both breasts was advised and was accepted, and pathologically they showed marked proliferation of the epithelium in the duct system of the breast, so-called Schimmelbusch's disease, which we believe is a precursor to cancer. Cancer begins, of course, as an overgrowth of the cell. What may be the stimulus to start those cells growing we do not know. I do think that the irritation of tight clothing may play a part. Certainly the irritation of retained secretion likewise plays a part.

As to those cases which Dr. Bullock mentioned that went on for so many years after what appeared to be pathologically a very malignant tumor, one must bear in mind that individuals have resistance to cancer just as they have resistance to other diseases, and likewise they have susceptibility to cancer just as they have susceptibility to other diseases. Girls or young women with tumors in the breasts in whom there is a definite history of cancer of the breast in the family, I think should be operated. We know that such an individual's cells have a tendency to begin to proliferate and to grow wild at some time, and I believe that it is much safer to sacrifice that breast at a time before cancer is definitely present than to wait until cancer is present when no one can give a prognosis, for, as Dr. Bullock has stated, cases are on record that have gone eighteen, nineteen and twenty years and then have died of metastases which have been slow in developing, but nevertheless metastases from the original tumor in which the growth has been simply delayed by the patient's resistance.

**A. D. Willmoth,** Louisville: Mr. Chairman and Members of the Association: No question could be more important to this Association than the question of cancer, and particularly cancer of the breast.

As the essayist said, the increase in percentage of cancers in all parts of the body, particularly in the breast, the tissue referred to by the essayist, makes it of sufficient importance that every physician, whether he be surgeon or general practitioner, should give this his most earnest consideration, because it is the general practitioner, as a rule, who sees these cases first, The patient consults the family doctor for the condition in the breast, and it is for him to say whether or not this woman will consult someone who does surgery or x-ray work. If he advises her to allow this tumor to remain for two or three months under observation, it is almost a certainty that she will follow his advice. If he advises her to have immediate examination and attention if it is necessary, it is most likely that she will follow that advice. So, after all, it is the man who sees the growth first or sees the tumor in the breast first who is the one upon whom the major portion of the responsibility lies.

I want to agree with the last speaker who commended to you the transillumination of the breast. Any of you can do that and in a very short time can acquire a certain amount of experience sufficient to determine whether these growths are solid growths or contain blood, and many of the bloody tumors will be the consequence of traumatism to the breast. In that way you get a wonderful amount of information.

The same can be said of x-ray, provided you use such technic as will give you the soft structures. Remember that it takes very little increase in the voltage of the x-ray to blot out the shadows that you are going to see, if you see them at all, so it must be a soft structure plate if you are to get any information. Dark plates will not give you the information desired.

As to what is to be done, since, if you have a hundred patients and eighty-seven of them are going to be primarily malignant, and of the thirteen, six or seven more are going to develop malignancy so that you only have about five or six chances out of a hundred of being mistaken in the tumor primarily, isn't it much better, isn't it much safer for this woman to advise her to have the growth removed immediately, to have the pathological specimen examined, with a frozen section at the time, and if it is malignant to allow you to go on and do a radical operation? It it little short of criminal to remove a tumor from the breast and not remove the breast at the same time if it is malignant.

Remember one thing, that the time that elapses between the time that you traumatize that breast and the time that you do the radical operation is going to decrease the chances of the woman's recovery very materially. The wound should not be closed and the breast should be removed in the next few minutes following the pathologist's report on that growth. If he reports that the growth is suspicious, take the breast off and clean out the axilla. Don't leave the axilla with all the glands leading up from the breast without taking them out as well as it is possible for you to do.

Perhaps there are some advantages in electrothermic surgery. Personally I like it, but I don't believe there is a great deal of difference whether you do it with the scalpel or with a cutting current, just so it is done thoroughly and you remove widely the superficial fascia beneath the skin.

Many of you are aware of the changes that have occurred in the use of the x-ray. We have stepped from the ordinary machine found in the usual roentgenologist's office to the immense machines that will generate a million volts. I want to say to you that at the present time there is no evidence whatsoever that you can do any more with a million volts than you can do with 145,000 or 165,000 volts, or, in other words, 165 kv.'s. While it is being tried over the country, it is purely experimental, so you need not feel so badly if your patient is unable to go to some distant city for a million volts treatment, because she probably will live longer for not having had it passed through her body.

We all had experience with the 250,000 volts, and we know one thing, that practically every woman who submitted to that radiation didn't die of cancer of the breast, but she did die with a fibrosis of the lung; she didn't have time to develop a secondary growth.

Perhaps (and this is to be determined by experimental work) when we leave 250 kv.'s and go to 1000 kv.'s, we may reach another field of the spectrum that is safer and where fibrosis will not take place, but personally, at the present time, I would be loath to recommend to anyone who was a friend of mine to submit to the million volts to see whether or not it would control the growth. It is still a matter of experimentation, and it remains to be seen, after two or three or four men over the country have put in these enormous machines, whether or not they are going to get any better results than other roentgenologists have gotten and are getting with lower voltage. It is entirely a matter of treating the patient with some form of treatment, as the essayist said, which I believe is correct; however, I want to say to you that the results have not been so brilliant with any form of radiation because sixty-five or sixty-six per cent of all the tumors in the breast are going to fall in Class III and Class IV of Broders' classification, in which nothing is going to do any good, they are radio-resistant and such a woman is doomed from the start.

If she happens to be so fortunate as to fall within Classes I or II, particularly the first classification, of Broders, in which the tumor is very susceptible to anything, it doesn't make much difference whether she is radiated or not—it won't recur, as a rule. If it falls in Class II the percentage of recurrence will be very little. But unfortunately for the woman, sixty-six and more per cent fall within the third and fourth classification, and that is particularly true between the ages of forty-five and sixty-five, and you are not going to benefit the woman except by prolonging her life with surgery, removing a foul-smelling growth, perhaps, and making life more bearable for her and those around her; you may prolong life for a few months, but it will recur in practically every one of them. The percentage is so high that you have very little chance of guaranteeing to the woman that the growth will not recur, because it is these two types in which the dissemination takes place so rapidly.

Deaver said in his monumental work on the breast, that after six months dissemination had already taken place, so you can see how few cases the surgeon gets that are so recent that they would fall within the first six months. It may be within the first six hours after the patient finds the tumor, which is usually found by accident while taking a bath or something like that, but it doesn't necessarily follow that the tumor just appeared there the last few days; the tumor in all probability has been there for some time and was accidentally found. If we are to follow the teachings of such men as the late Dr. Deaver, we have little chance to make the mortality lower than it is.

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**Functional Albuminuria.**—Jameson and Scott point out that albuminuria is a common condition in growing young adults. Its presence has been taken too often as an evidence of chronic interstitial nephritis. The tests heretofore commonly used to distinguish functional from organic albuminuria have been unsatisfactory. A test as described by Jehle has been carried out by the authors on a series of thirty young persons with albuminuria. They believe that this test is the most satisfactory yet devised. As evidence of the importance of a mechanical factor in functional albuminuria, lordosis and varicocele were common observations. Albuminuria may exist in the absence of lordosis, possibly, as Jehle has pointed out, from pressure on the inferior vena cava by a low diaphragm.

# HERNIA INTO THE PARADUODENAL FOSSA WITH LARGE BILIARY CALCULUS; REPORT OF CASE*

I. A. Arnold, M. D.,
Louisville.

Mrs. Lela F., age 70, white, female. Admitted to Norton Infirmary Jan. 29, 1933.

Present History began seven days before admittance to hospital and immediately following meal which made her very sick. She began vomiting the stomach contents, accompanied by severe pain in the epigastric region and which gradually subsided for a period of twenty-four hours when the patient began to have intermittent cramps, pain and nausea. This condition would last for a few hours, then subside only to recur upon eating, after which she would invariably vomit her food in from one to three or four hours. She progressively became worse and was removed to the hospital at which time she was vomiting fecal matter. From the history obtained she never at any time suffered the severe pain that one would be supposed to experience from an intestinal obstruction, neither was the distention of the abdomen marked. I was unable to obtain a past history that would tend to have any bearing upon the present condition.

Physical Examination—Arcus Senilis. Generalized arteriosclerosis. Slight cardiac hypertrophy. Definite systolic murmur at the apex, aortic and pulmonic areas. Second sounds weak. Blood pressure upon admittance 110-66. Blood pressure before starting to hospital was 150 systolic. Pulmonary congestion marked. Abdomen slightly distended. Rigidity No. 1 marked. Peristaltic waves detected but not vigorous.

Laboratory Findings: Urine Cloudy, acid. Specific gravity, 1020. Bile, negative, Urobilin, negative. Microscopic; numerous squamous epithelial cells, mucous threads, many pus cells, occa. red cells.

Blood Count: Red cells, 4,530,000. Hemaglobin, 80%, 12 grams. Color index, 9. White cells, 21,200, Neutrophiles, 84, Basophiles, 1, Monocytes, 6. Lymphocytes, 3.

Diagnosis: Intestinal obstruction, probably carcinoma. Upon opening the abdomen through an upper right rectus incision there was a pronounced discoloration and slight distention of the small intestine extending from the stomach down to about five feet where the loop of the intestine went through the opening formed by the ligament of Treitz and was twisted upon itself. There was a large mass in this hernia which upon

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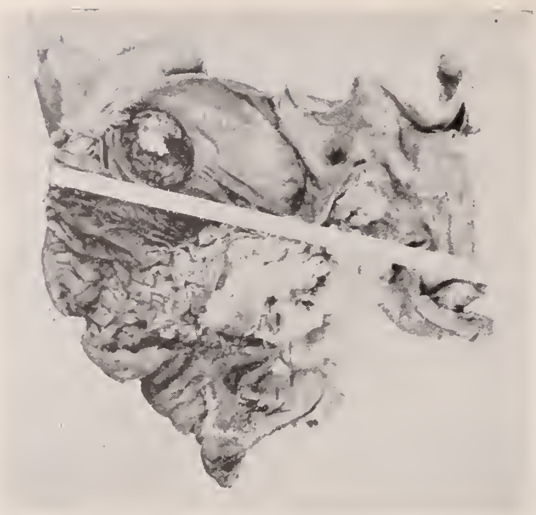
*Read before the Jefferson County Medical Society.



The gall stone placed in the fistula.

opening the intestine proved to be a gall stone. Upon examination of the gall bladder region there were found the following ing facts. Along and in conjunction with the common duct over to the duodenum a fibrous band was found but no definite gall bladder could be made out. Owing to the desperate condition of the patient no further examination was deemed advisable. After the obstruction had been relieved and the stone removed from the small intestine the color began to return to the bowel. The abdomen was closed in the accustomed manner with four stay sutures. At the time of the operation 1000 cc of 10% glucose and saline were given intravenously, also a stomach lavage. At first there was pure fecal matter; the lavage was continued until the fluid returned clear. Patient was given 1-6 morphine and 1-200 hyosine immediately preceding the operation which was done under spinal. Patient went to sleep during the operation partially due to the hyosine and morphine but, in my opinion, mostly due to coma from which she never rallied.

In this case the fundus of the gall bladder had anastomosed itself to the duodenum just opposite the ampule of Vater. An opening was formed due to the pressure of a large stone and from the different colors of the ends of the stone it had been partially delivered into the duodenum for some time as it showed evidence of having been acted upon by the gastric juices. During the first siege of vomiting the delivery was completed. The stone passed down into the jejunum for about five feet and lodged where a portion of the gut had gone into the left inferior paraduodenal jejunal fossa. This knuckle of gut with the stone inside was twisted upon itself and had gone downward, backward and outward for about five inches behind the peritoneum. A large mass could readily be felt posterior to the peritoneum. On delivering the gut from the hernial fossa, this hard mass proved to be a large biliary stone. The intestine was incised and the stone removed.

This hernia is difficult to describe as well as demonstrate so that others may see how it can happen. When you lift up the colon and stomach to show the fossa, the greater portion of it disappears but, with the finger in the fossa and the intestines turned down in their normal position, the fossa greatly increases. It is only then you can visualize how this hernia occurs.

Sherrill, in his book on Peritonitis, gives a graphic description of the anatomical condition of the left duodenojejunal fossa where these hernias not infrequently occur.

Moynihan describes nine of these rudimentary fossae about the duodenojejunal flexure in which the internal hernia may be found. The most important are the superior and inferior paraduodenal folds and the fossa of Waldeyer and Landzert.

Stenke of Akron in Volume 25, 1932, Archives of Surgery, I consider the best classification of paraduodenal hernias. He classifies them as right, left and duodenojejunal, superior and inferior. The one under discussion would come under the duodenojejunal inferior.

Dr. Kenneth Hallock presented a specimen of duodenojejunal hernia before the Chicago Surgical Society March 2, 1917 and reported in Surgery, Gynecology and Obstetrics, Volume 26, Jan.-June, 1918, page 473. But in his case it was found at post mortem that the hernia went upward and backward, but in my case, the hernia went downward and backward.

Edward Doudle, F. A. C. S., Detroit, in Surgery, Gynecology and Obstetrics, Volume 54 Jan.-June, 1932, page 246, reports thirty-four of the right and one hundred and five of the left which have been recorded in literature. Of the thirty-four cases of right paraduodenal hernias seventeen came for operation and seventeen found at autopsy. Of the seventeen operated on there were six recoveries and eleven deaths. His case made the thirty-fifth reported and eighteenth to come for operation and the seventh for recovery.

The latest data which I am able to find on Internal Hernias is reported by Carl R. Steinke quoting Short of 1925 in Archives of Surgery, Volume 25, July-Dec., 1932. To date there are two hundred and three paraduodenal hernias, forty-eight in the left duodenojejunal fossa but, in the record of these cases there is not a single case which shows the obstruction in the herniated gut to be that of a gall stone as was in my case.

### Post Mortem Report

The following necropsy report was made by Dr. A. J. Miller:

The body is that of a well developed, well nourished white woman. The abdomen is rotund, but not distended. In the upper right rectus region there is a recent surgical incision.

Gastro-Intestinal Tract. The stomach is filled with gas and a small amount of liquid which is fecal in character and contains four faceted gall-stones, about 5 mm. in their longest diameter. In the right lateral wall of the second portion of the duodenum there is an ulceration entirely through the wall of the duodenum and communicating with the lumen of the gall bladder. The gall bladder is shrunken and fibrous, surrounded by fat tissue. The cavity seems to be limited to this fistula which is about 2½ cms. in diameter. An opening into the cystic duct is not demonstrated. Apparently the fistula between the duodenum and gall bladder was formed by the erosion of a stone from the gall bladder into the digestive tract. The hepatic duct is patent as is demonstrated by gently milking it and expressing bile into the duodenum. The remainder of the tract is not opened. The duodenum and jejunum are dilated and hemorrhagic for the distance of about 4½ feet. Beyond this point the small bowel is collapsed and the large bowel also is not distended. At this point in the jejunum about 4½ feet from the duodenum there is a recent surgical incision opposite the mesenteric attachment. It is reported that a large gall stone was removed from this location, and that this loop of the bowel was at operation found to be herniated under the ligament of Trietz. The ligament of Trietz is examined in situ and found to be hemorrhagic, and swollen and softened.

Liver—Is soft, light-colored and blotched.

Pancreas—Contains a few small flecks, evidently the result of old fat necrosis.

Kidneys—The right kidney is light colored, soft, but not dimpled.

Pelvic Viscera—Are not remarkable except for small calcified fibroids attached to the uterus.

### Summary

This patient's illness evidently began as cholelithiasis. One of the stones is large and eroded its way through the gall bladder and duodenum, forming a cholecyst-duodenal fistula. This stone became impacted in the jejunum 4½ feet from the duodenum and this impacted loop became herniated beneath the inferor duodenal fold, (ligament of Trietz), resulting in complete obstruction of the small bowel.

The patient's death is attributed to complete obstruction of the jejunum. The small stones were evidently regurgitated from the duodenum into the stomach, having passed through the fistula.

### DISCUSSION

**A. J. Miller:** This case presented a very unusual condition. At the time of post-mortem, course, the stone had been removed but the effect upon anterior duodenal folds of the herniation of the small bowel behind it was still noticeable.

**J. Garland Sherrill:** This is an extremely interesting case, first because of the rarety of hernia through the peri-duodenal folds and, second, because the sac had a gallstone in it causing obstruction, which makes the case unique in medical literature. It deserves more attention than has been given it in this discussion. The condition would have been serious even without the presence of the gallstone, which made it more serious, and I think no blame attaches to Dr. Arnold because the patient did not recover.

## CANCER OF THE COLON*

Fred W. Rankin, M. D.

Lexington,

In the time alloted me for discussion of cancer of the colon I particularly wish to discuss two phases: first, its symptomatology, and second, its prognosis. There will be no dissension, I am confident, from the assertion that the colon itself differs developmentally and physiologically in its right and left halves, the right half, which contains the anatomical segments commonly referred to as the cecum, ascending colon, hepatic flexure and proximal portion of the transverse colon, develops with the small bowel from the mid-gut and shares its function of absorption. Approximately nine-tenths of the liquids which are absorbed in colon are taken up in this portion. It differs anatomically from its fellow of the opposite side in that it is more thin walled and larger in diameter. The pathological lesions found here are likewise inclined to be large, flat, ulcerating, growths in contradistinction to the encircling, signet ring, stenosising growths found in the left half. As a result of these differences, one finds physiological disturbances characterized by anemia, dyspepsia, intestinal upsets, and ill-defined right sided discomfort predominating in the right half, while on the left side of the large bowel obstruction dominates the picture. Unfortunately, there are no readily recognized early symptoms pathogomonic of colonic cancer, but there are definite groups of symptoms which revolve around either physiological imbalance, or obstruction, which are usually sufficiently characteristic to warrant a gastrointestinal investigation before the carcinoma advances to a hopeless stage. That the ultimate diagnosis of these symptoms rests with the roentgenologist is, I believe, incontrovertible. The increasing facilities at his command, and his increasing accuracy in recognization of the location and pathological type of the growth have advanced diagnosis to a point where one may readily compare the efficiency of x-ray recognition of lesions of the large bowel to that of other portions of the gastrointestinal tract.

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*Delivered before the Kentucky State Medical Association, at Murray, September 11, 12, 13, 14, 1933.

There are two essentials for certain x-ray investigation which one should bear in mind: first, a satisfactorily emptied and clean bowel; second, the patient's ability to tolerate the barium enema. That the opaque media should be invariably administered by enema, instead of ingested is not, I feel, debatable in lesions of the colon. Not only is a barium meal administered by mouth of little or no value in the diagnosis of large bowel lesions, but not infrequently it is decidedly harmful and occasionally the direct cause of a fatality. It has been my unpleasant experience occasionally to be called to see a case where an acute intestinal obstruction has been produced by the administration of a barium meal to an individual harboring a stenosising, obstructing, lesion of the large bowel. That this is a most unfortunate situation is undeniable and its production is always avoidable if one administers the opaque medium per rectum rather than per os. The recent development of the Fischer technique of filling the colon partially and then evacuating it has been a most desirable addition to the radiologist's armamentarium and has most favorably increased diagnostic accuracy.

The syndrome of symptoms in the right colon which should urge investigation of the bowel may be divided into three types: first, the dyspeptic group; second, the anemic group; third, the accidentally discovered group.

In the first group one finds a number of patients whose symptoms of mild dyspepsia, transitory pains over the right portion of the abdomen, and food idiosyncrasies of various types creates a suspicion of gall bladder disease. In this group it is statistically shown that about ten per cent of them have been within the duration of their symptoms operated upon for cholecystitis, or appendicitis.

The anemic group is a very considerable portion of the whole and presents a strikingly characteristic picture. These individuals are profoundly anemic but are unconscious of any loss of blood in the stool, or on the stool, and indeed frequently seek advice for weakness or other symptoms which accompany profound blood loss. The differential diagnosis obviously in this group rests between a primary and a secondary anemia, and while there is small reason for a hematologist to confuse the two types, often less expert diagnosticians must arrive at a conclusion by a process of elimination. Consequently, it is essential to differentiate between pernicious anemia, cancer of the stomach, and other lesions which will produce the profound blood loss. Of the lesions in the gastrointestinal tract one is more likely to discover a cancer of the right colon the cause than otherwise.

The third, or accidentally discovered group ranges between five and ten per cent of the whole and is obviously a most favorable group for surgical attack since usually the lesions are in early stages and have not produced symptoms. These tumors are usually discovered by the patient after reading some literature on cancer, or attending a lecture where the subject was discussed. I have operated upon a number of physicians who fall into this group having discovered the lump when palpating their own abdomen although not conscious of any symptoms referable to it.

In the left colon I believe more than 75 per cent of cancers produce at sometime or another some degree of obstruction. The two symptoms which are most likely to call attention to them in their earliest stages are change in bowel habit by which I mean either increasing constipation, or attacks of diarrhea alternating with constipation, and secondly blood in the stool or on the stool. These symptoms are usually permitted to exist over a period of time before investigation is made and in the interim chronic obstruction has frequently advanced to subacute stenosis and occasionally to complete acute obstruction. It is essential then that blood in the stool, or on the stool, change in bowel habits characterized by constipation or alternating attacks of diarrhea and constipation, profound anemia unaccompanied by visable loss of blood, unexplained dyspepsia which persists over a period of a few months, or tumefaction over any portion of the colon should be investigated by clinician and roentgenologist until a satisfactory elimination of colon cancer is reached, or confirmation of its presence is arrived at.

### PROGNOSIS

Prognosis following successful removal of a malignant neoplasm of the large bowel is readily shown by a study of a large series of cases to be more favorable than that of surgically removed malignant lesions elsewhere in the gastro-intestinal tract. Indeed this statement may be further amplified by the assertion that the satisfactory out-look of colon cancer successfully removed is easily comparable to that of cancer of the body of the uterus, or cancer of the breast, or lip—all recognized as the most satisfactorily treated malignancies.

To accept statistics without considering modifying factors is, I think, not only frequently misleading but often inaccurate from the standpoint of conclusion. One must have some standard of operability and mortality, as well as some standard of malignancy, if he would estimate accurately the end results following surgery for cancer of the colon. Many modifying factors which are frequently referred to as extrinsic influences must be taken into consideration. The most prominent of these are age of the patient, co-existing debilitating diseases, duration and direction of the growth, and the general debility incident to or co-existing with the cancer.

It has long been a well recognized fact that the age of an individual influences in reverse ratio the prognosis so far as cancer is concerned. Youthful individuals with cancer of the gastro-intestinal tract, while they may withstand a formidable surgical procedure with less embarrassment than middle-aged, or aged persons, will, nevertheless, because of the very vital elasticity of and activity of their tissues, be twice as prone to suffer recurrence or to develop early metastasis as the more aged.

Anemia, loss of weight, et cetera, are usually in reality only signs and symptoms of advanced malignancy or hopeless metastasis. Co-existing debilitating diseases the most important among which are perhaps such illnesses as cardiorenal impairment, diabetes, et cetera, influences the operability but are not really important prognostically save in a general sense.

Local factors such as fixation, perforation, abscess formation, involvement of adjacent viscera, et cetera, exert certain influences upon the out-look yet they more directly concern mortality and operability and consequently successful removal than ultimate longevity. It is my considered opinion that the most important single factor in any given series of cases, cancer of the gastrointestinal tract is the intensity of the malignant invasion. It is the single yard stick by which one may measure the chance survival of an individual case. Broder's index of malignancy by which he divides malignant growths into four groups I-II-III-IV, according to their degree of differentiation is, I think, the most accurate prognostic factor available.

In reporting before the College of Surgeons in October 1932, a series of 453 cases of cancer of the large bowel successfully removed, I found that the grade of the growth influenced in direct ratio the involvement of the adjacent lymph nodes and consequently distant metastasis, and therefore, postoperative length of life. There was some difference in grading in the right and left colon, and some difference in postoperative longevity in the two halves of the large bowel as estimated on a basis of five year cures. We found that the vast majority of cancers of the large bowel in both the right and left half fell in the lower grades, namely I and II. For instance in the right colon there was an incidence of 11 per cent in Grade I and 55 per cent in Grade II with nodal involvement—23 per cent in Grade III and 11 per cent in Grade IV. There were five year cures in direct ratio to these grades: 41 per cent in Grade I—47 per cent in Grade II—15 per cent in Grade III—25 per cent in Grade IV.

Where there was no nodal involvement there was a per cent incidence from Grade I to IV of 16 per cent-63 per cent-15 per cent 5 per cent with a percentage of five year cures in directly progressing sequence of 72 per cent-60 per cent-54 per cent-36 per cent. It is consequently very obvious that the grading of the growths influences enormously the ultimate outcome and that an individual fortunate enough to possess low grade growth without glandular involvement and withstand a successful eradication has three out of four chances if it is a Grade I, and two out of three if Grade II, of surviving without recurrence over a period of five years. There is some difference prognostically in the right half of the colon and the left—the percentage being in favor of the right half. Glandular involvement takes place from cancer of the right half in 34 per cent of the cases, while only 31 per cent of the left colon malignancies show nodal metastasis. This is a paradoxical finding since the ultimate prognosis in right colonic cancer is more favorable than in the left, and yet in studying this large series the percentage figures were as given. At the end of five years, however, we found that including all grades and types of malignancy in the right colon 57.5 per cent were alive and free from recurrence and in the left colon 47.7 per cent. The average of these figures gives a per cent of 51.3 per cent or better than one out of every two cases alive and free from recurrence at the end of a five year period. This satisfactory prognosis, however, must take into consideration one other factor, namely operability. How many cancers of the colon out of one hundred will one be able to subject to surgical operation, and with what chance of an immediate as well as an ultimate survival? Operability figures vary more widely in the hands of different surgeons and yet I think their influence is unmistakable. For example an operative mortality in the hands of one man may be much lower than that of his colleague, but a further comparison will show likewise that his operability figures are smaller in proportion. In other words while he will lose fewer cases at operation he will operate on fewer in a given number in an attempt to extirpate the growth and consequently will have a smaller number of patients alive out of the given number at the end of any given term of years.

During the last few years our operability has never reached below 50 per cent. One year it was as high as 68 per cent. This is perhaps about an average for surgeons of not only the United States but of the Continent. Mortality figures varied but little during this same period of years in our service. The average mortality was approximately 10 per cent, one year it was reduced to 8.5 per cent, the next year it rose above the 10 per cent median.

One may not operate upon malignant conditions of the large bowel without a relatively constant mortality and it is my feeling that 10 per cent as an average under present conditions is a reasonable one. To go very far below this figure is to refuse operation to many border line cases which frequently may receive long palliation and occasionally cure. With the standard of operability then figuring around 10 per cent and a standard of mortality around 10 per cent, with the proven percentage of five year cures high, with a better understanding of the basic principles of surgery of the large bowel and colon, and an advance in technical maneuvers as well as an enormous increase in diagnostic accuracy, it seems reasonable to hope that a higher operability and a lower mortality with an even more favorable ultimate result may be the reward of continued efforts in this field.

## DISCUSSION

**Wm. J. Martin, Jr., Louisville:** I want to discuss this paper for a few minutes from the standpoint of proctology with especial reference to the growths that are found in the lower part of the left colon. Statistics show that about four per cent of all the carcinomas of the body are found in the rectal region. Eighty per cent of the carcinomas of the large bowel are found in the rectal region, of which sixty-seven per cent are found in that anatomic segment of the bowel known as the rectosigmoid which extends from a distance of two and a half centimeters intraperitoneally to two and a half centimeters extraperitoneally. The remainder of those, thirty-one per cent, are found in the rectum proper, and about two per cent are found in the anal region.

Digital examination of the rectum should not be considered conclusive, for the simple reason that very often inflammatory lesions with perirectal induration can be easily mistaken for these growths. The only method which is direct and which should be considered in localizing these growths and examining them is the sigmoidoscopic method where the growths are thought to be in that area of the lower bowel from the lower sigmoid down to the anal region, and by direct method I mean the sigmoidoscopic method, because very often in this area the direct x-ray method does not show up the growth. Of course, in the other part of the bowel you have to depend on x-ray diagnosis where it is above the region of the sigmoidoscope.

To one who is familiar with sigmoidoscopic examination the appearance of the carcinoma of the bowel is not at all startling and is not hard to diagnose. Any single growth seen through the sigmoidoscope should be looked on with suspicion, whether it is a proliferating growth or whether it is an excavating growth. The fact that it is a single growth is almost pathognomonic of carcinoma. Of course, polyps of the bowel, of which a large number are found in the rectum, whether they be single or whether they be multiple, should be looked on with suspicion.

Rankin and Fitzgibbon a few years ago went over a series of cases of polyps of the bowel and found that forty-seven per cent of these polyps which had been removed were malignant, so any growth, if it be one centimeter in diameter or even less, should be looked on with suspicion.

The best way to remove these growths, I believe, is by the fulgurating current through the sigmoidoscope. No anesthetic is required and there is no post-operative bleeding attached to this removal.

Through the use of the sigmoidoscope there are four factors which can be determined which are of help to the surgeon who is to extirpate the growth. The first of these is the position of the growth; the second is the size of the growth. The size of the growth, however, doesn't mean a great deal, because the large proliferating cauliflower-like growths are usually of lower grade than the smaller excavating growths which grow toward the serosa. It has been found that these small growths are more apt to spread and you are more apt to find that they are fixed.

The next important factor is the degree of obstruction. This determines to a large extent the pre-operative preparation of the patient, which is a very important factor in the management of these growths in the bowel, in fact in any part of the bowel.

The next most important point that you can determine by this method and which you can't determine by digital examination in the recto-sigmoid and those above the reach of the finger is the degree of fixation. You can determine this by pushing the end of the scope against the growth, and you can determine whether it is attached to some other pelvic organ or whether it is attached to the sacrum or in what degree it is attached.

These are very important points and something that the surgeon should know.

I think another very important point is the personal equation of the surgeon who does these growths. If you are able to keep your operability above fifty per cent you have done well, and you should not have an immediate mortality of more than ten per cent.

**Fred W. Rankin,** (in closing): I haven't anything to add except to emphasize what Dr. Harding said. I asked him to do that because he is a radiologist who has these troubles, and it is very unpleasant to have to send back a negative report on a positive case, and vice versa, but I don't believe that we can get any further in the diagnosis of carcinomas of the large bowel until we make some effort to suspect them at an earlier stage and to have them x-rayed properly at the hands of a competent radiologist. Their efficiency is in direct ratio to the preparation of the patient and the cooperability of the patient, and if the first examination is not satisfactory, I think we should not hesitate to have a second or even a third x-ray made. Certainly when we realize that these cases are ten and a half months from the observation of their symptoms before they seek advice, because after all we have no way of recognizing them until they come to us to be examined, we have a good deal to wish for from the standpoint of earlier recognition, and I would emphasize also that the question of change in bowel habits is perhaps the first of the smaller symptoms, the less pointed symptoms that should call to our attention the necessity for an examination of the large bowel. It is essential that not only the laity but the profession be a little more colon conscious if we are to get hold of these cases at any earlier stage, and when you realize that at present the operability of these cases is rarely over fifty per cent and more frequently under it, you realize how many of them have progressed to a very advanced stage before any attempt is made at eradication.

# MEDICAL PREPARATION OF A PATIENT FOR UROLOGICAL SURGERY

FRANK M. STITES, JR.

Louisville.

Probably in no field of medicine have as important strides been made as in the improved methods now in vogue, in preparing patients for urological surgery. In this paper we shall only mention that the urologist as much as the laboratory and internist has been responsible for this advance. In attempting to evaluate the factors that have contributed to the reduction of mortality in urological surgery in the past two decades, we are forced to admit that the outstanding factor is the preliminary treatment or preparation of the patient for surgery whether carried out by the competent urologist or an associated internist. In this work the methods of testing the functional ability of an organ or organs are a large factor in enabling us to determine the damage wrought, the prognosis, and by repeated test to realize the progressive nature in either direction.

Many of the tests are of older origin but their application has been comparatively recent and a true evaluation of them is even more recent.

For a more complete application we feel that it is desirable to make this study first of the renal system and then of the circulatory system as these furnish the major difficulties in preparing for urological surgery. The renal problem is of the greatest importance and therefore is discussed first. Knowledge as to whether a damaged kidney is organically involved or whether the function is simply impaired is of prime importance, whether the surgery involves the kidney itself, or the prostate or some other portion of the urinary tract.

In estimating the degree of damage we should determine, the daily output, the night volume, its specific gravity, the evidences of renal destruction, its capacity to excrete phthalein, the blood nitrogen and creatinine. Functionally the kidney is principally an excreting organ and lends itself admirably to functional tests, making it a comparatively easy matter to determine the results of damage and its ability to resume its function. It is however, somewhat difficult to definitely correlate these functional findings with the degree of change in the organ itself, but we must be satisfied in a general way with the total function, although there is a strong evidence to make us think that certain portions of the kidney have selective action in the excretory action. Many tests have been attempted to show this differential action, but because of a large degree of compensatory activity none of them have been entirely satisfactory.

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*Read before the Tri-County Medical Society at Hopkinsville, June 1933.

One of the best known, earliest and even now most used test of renal function is the phthalein test as devised by Rountree and Geralty. Normally 60-80% is eliminated in two hours time, and lessened activity is fairly accurately determined. Also differences in the two sides may be determined and this is especially helpful in surgery.

Probably the next most useful and frequently used functional test of renal activity is the so-called two-hour or Mosenthal test. This measures the renal ability to excrete water and solids in relation to their intake. Several meals are suggested but probably the most used is this one suggested by Mosenthal himself. A given dietary being followed the urine is collected at two hour intervals from 7 A. M. to 9. P. M. and then a single specimen from 9 P. M. to 7 A. M. Each specimen is measured as to amount, and specific gravity. Normally this test shows a true response in the organs ability to concentrate the urine and the first variation in a damaged kidney is most frequently inability to concentrate and as a result the night volume is increased in amount, as well as the day specimens showing a tendency to uniform specific gravity. As I've said this is an important test of early damage, but not so valuable as a test of increasing impairment.

The kidney being principally an excretory organ it was early found that these substances were carried in certain amounts in the blood stream and the determination of the normal was soon made. In earlier days large quantities of blood were necessary for such determination and very little use was made of this knowledge. But in more recent years improved tests have simplified this work and it is relatively easy to determine these factors. For general use we know that increases in the excretory substances as found in the blood are more or less accurate indices of the impaired function of the organ. This is not wholly true for food intake causes some variation but a patient with a so-called fasting blood chemistry gives us a fairly constant finding. For convenience it might be best to here give the normal variations in blood chemistry.

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|---|---|
| Blood urea | 10-16 mgm per 100 cc blood |
| Non prot. nitro. | 25-30 mgm per 100 cc blood |
| Uric acid | 2-4 mgm per 100 cc blood |
| Creatinine | 1-2 mgm per 100 cc blood |
| Blood Sugar | 80-120 mgm per 100 cc blood |

All of these are indices of renal function except the last which of course indicates pancreatic function and should always be determined when there is necessity for any other blood chemistry.

Thus far we have seen the value of two of the more common studies before attempting urological surgery, but the parallelism of these two studies frequently varies and this is especially true in obstructive nephropathies. This is demonstrated frequently, especially in prostatic cases in normal N. P. N. and little or no capacity to excrete phthalein. Surgery is always best delayed until this can be corrected. In this same group of cases parallel studies are interesting for we frequently find high N. P. N. readings with corresponding increases in the creatinine figures. In the non obstructive cases this should be viewed with alarm but if we are dealing with a prostate of the obstructive type our prognosis can be much less guarded.

In a brief way this has given us our first phase of this paper, the preparation of the urinary system and this is probably done more thoroughly and more frequently than is the second phase. We are too apt to be satisfied with only a cursory opinion as to this ability of the circulatory system to adequately stand urological surgery.

In studying the renal function and its condition for surgery we are not so much concerned regarding the age of a given individual for the renal function may be quite badly damaged in a young individual as well as in an older patient. Of course the great majority of urological surgical conditions involve the prostate gland and this is by far more common in the older patients. But the degree of renal damage is usually the result of obstructive processes as well as of changes in the renal circulation and both phases must be considered in these individuals.

The tests for circulatory function are by no means as satisfactory as are those of renal function but fortunately in recent years the advent of spinal anaesthesia has given us a safeguard that has been a tremendous boon to the urological surgeon.

A proper conception of the circulatory system and its ability to withstand a strain from any surgical procedure is of prime importance, but probably in urology is this more important than in any other branch of surgery. There are undoubtedly two extremes in this, namely the ones who are negligent in making an adequate survey of the ability of a given heart to carry through in an unusual strain and those who are unduly inclined to overemphasize endocardial pathology and interferences in the conduction system that are of secondary importance.

The myocardial condition however, is of especial interest in arriving at a conclusion as to the ability of a patient to withstand radical work. Next to the myocardial condition of course the condition of the arterial system is of importance.

Blood pressure determination usually gives the first indication of these two conditions. An unusually elevated systolic pressure of course predisposes to hemorrhage and this should be corrected as far as possible in preparing for the surgical procedure. In a paper of this type it is not necessary to discuss the treatments in vogue to improve the arterial system. But to determine the condition of the myocardium, the diastolic readings are quite necessary. Usually in myocardial weakness there is a lowered diastolic reading and this should always be studied more thoroughly by a heart function determination. In doing this the blood pressure and pulse rate are taken at rest. Then moderate exercise is given, the amount of exercise depending on the symptoms, the age and the usual activity of the patient. We prefer the "hop" test using as a rule 40 to 60 hops as moderate exercise. After this is done immediate reading of the pressures and rate are again made and after 3 minutes rest a normal heart should approximately return to the original readings.

However in myocardial weakness instead of elevation in diastolic pressure proportionate to the systolic rise there is a drop of the diastolic pressure and the degree of involvement is characterized by the return or further fall after rest. To some extent, the condition of the myocardium can be determined by the electrocardiographic tracing which shows lowered amplitude in the QRS complexes.

We are however very much of the opinion of Christian and many others who feel that the growing tendency to put implicit trust in instrumental determination as replacing the natural impressions from physical examination is a grave mistake. Of course the ideal way is a thorough evaluation of the patient's condition from a combined study of both methods.

Two other methods in complete preparation of these patients which might be classed both as related to the renal and circulatory system are transfusion and intravenous glucose. In the urological case that is anaemic from loss of blood or from a general debilitated state the ideal preliminary treatment is an adequate transfusion. If the individual is dehydrated or decidedly undernourished intravenous glucose gives them a reserve that in many cases is life saving. Either single doses or if the heart and kidney can tolerate some increased load the continuous venoclysis as advocated by Hendon does much to safeguard against post-operative reactions.

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# ACUTE SUPPURATIVE OTITIS MEDIA AND ITS COMPLICATIONS*

G. W. White, M. D.

Henderson.

This type of inflammation of the middle ear is characterized by marked hyperemia of the mucous membrane of the middle ear, including the inner wall of the drum head which is usually followed by pain and perforation of the drum discharging pus into the external auditory canal.

The exciting cause of Otitis Media is pathogenic microorganism in the middle ear. The organisms may be of single variety but frequently are found a varying number of associated bacteria which may be influential in determining the outcome of the case. Streptococcus hemolyticus, strep viridans, pneumococcus and staph are the organisms most commonly isolated.

Strep hemolyticus, of the beta type is probably the most frequent found. It is very often found in influenza epidemics. Streptococcus mucosus (Pneumococcus type III) gives rise to the most severe, treacherous and destructive form of Otitis Media. It has a tendency to produce late and unforeseen complications. The bacillus diphtheria is sometimes present in the discharge, it may be the initial infecting agent or it may be a secondary infection carried to the already infected ear by the finger or otherwise. It may persist for a varying time in the discharge and may constitute a source of danger just as has been thoroughly established concerning the prolonged residence in the nasal cavities, pharynx and etc. Reports gathered from literature establish the existence of primary tuberculous Otitis but most observers are of the opinion that it is very difficult to demonstrate in the discharge.

Acute infectious fevers are frequently accompanied by Otitis Media. About 10 to 15 per cent of cases of Scarlet Fever, 7 per cent, of Diphtheria and 5 per cent of Measles develop Otitis Media. Gowan in reporting on ear complications in 10,086 Scarlet Fever cases at the Philadelphia Hospital for contagious diseases, found there were 1063 developed Otitis and of these 210 had a definite surgical mastoiditis. Of 172 Pertussis cases 9 had Otitis and none mastoiditis. Of 100 Chicken Pox none had Otitis. Of 188 Small Pox 4 had Otitis and none mastoiditis. Otitis greatly increased when Scarlet Fever was complicated by Measles. The predisposing causes are colds, exposure, chronic rhinitis, epipharyngitis, enlarged and infected adenoids, enlarged and infected tonsils, syphilis, tuberculosis or other constitutional diseases.

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The use of nasal douches sometimes causes the diseases. Bathing, diving and snuffing fluids into the nose when an acute rhinitis or pharyngitis is present also act as causes. Operating on the nose or throat in the presence of acute rhinitis or tonsillitis will be complicated in many cases. Age has a direct influence. A large majority of cases being in children, most cases occurring with the acute infectious fevers are usually bilateral. Finally, it may be stated that all conditions which lower the resistance of the middle ear predispose to the condition. The various constitutional diseases of the fauces, nose and epipharynx produce lowered cell resistance and predispose to the infection.

The symptoms may be grouped under pain, temperature, appearance of the drum, character of the discharge and the disturbances in hearing. The pain may be piercing, tearing, boring or throbbing in character. It is continuous but becomes less severe at times.

The temperature at the onset is elevated from one to five degrees and is sometimes preceded by a slight chill and occasionally by convulsions in children. After the suppurative process is well established and drainage takes place the temperature subsides to normal or near normal. In the early stages the drum membrane is scarlet red, ecchymotic, swollen and more or less bulging. The handle of the malleus and other land marks are obscured by the swollen drum membrane. The yellow purulent secretion behind the drum does not show as often as one might expect on account of the swollen membrane but occasionally a greenish yellow bulging spot may be seen and when it appears perforation is imminent. The secretion may be serous, seromucus, serosanginous, serohemorrhagic, mucopurulent or mucohemorrhagic. If it is purulent it often runs a more favorable course. The quantity of pus varies greatly at different times. In nephritis, cachetic, leukemic, hemophilic and traumatic cases the hemorrhagic type is usually present.

The hearing is impaired in proportion to the amount of congestion and secretion present. In infections involving the labyrinth deafness may be profound.

As to complications and sequelae.

The great majority of cases terminate in a positive cure. A few cases will result in complications as follows.

(A) Catarrhal Otitis.
(B) Adhesive processes.
(C) Partial deafness.
(D) Mastoiditis.
(E) Labyrinthitis.
(F) Chronic suppuration.
(G) Intra cranial complications.

Catarrhal Otitis. A catarrhal termination is not attended with immediate serious consequences but it may in time produce pronounced tinnitus and impairment of hearing.

Adhesive processes may form from the thick mucoid secretions or exudate, binding the ossicles to each other or the wall of the tympanic cavity.

Partial deafness is usually the result of persistent discharge which has lasted over six or eight weeks, as a rule some involvement of mastoid cells has occured.

Mastoiditis. While mastoiditis freqeuntly complicates middle ear infection it is not always severe enough to cause serious symptoms. In some cases, however, notably those due to infectious fevers, influenza and etc., the mastoid involvement becomes the chief problem. In mastoiditis due to influenza, the symptoms, tenderness, pain and etc., are all out of proportion to the degree of involvement. Frequently if the mastoid is opened early, the only pathology found is a red and swollen mucous membrane with some blood clots. In children the mastoid process is often perforated through the external plate giving rise to a subperiostal abscess.

Labyrinthitis, following acute middle ear lesions is more likely to be diffused, with a meningeal involvement and end fatally more often than those developing in the presence of chronic suppuration.

Chronic suppuration. This sequela results frequently in the untreated cases. The mucous membrane of the tympanic cavity may be partly eroded or the ossicles partly necrosed.

Intra cranial complications. A fatal issue may result early in the disease from meningitis, sinus thrombosis, septecemia or brain abscess. The infection may reach the meninges through the labyrinth, the tegmen antri or tympani or through one of the open sutures of the temporal bone in young children.

### TREATMENT

I shall not go into detail on treatment but give a brief outline of the most practical things to do.

(A) Complete asepsis and drainage should be striven for, to prevent the discharge becoming chronic. To fail in this regard subjects the patient's life to increased hazard. If thorough asepsis is maintained, a secondary infection is prevented. Likewise reinfection of the nose or throat such as acute rhinitis or tonsillitis should be prevented.

(B) In the early stage, before perforation occurs, a five per cent solution of Carbolic Acid in Glycerine should be dropped in the ear. It is also a valuable remedy after perforation, as it is hygroscopic, reduces edema of the mucous membrane and thus establishes a more rapid flow of discharge.

Early incision of the drum should be practiced at its most bulging portion, it should be free and curved to allow for good drainage. If the secretions are thick and tenacious, a syringe may be used, using warm boric acid solution or frequent swabbing out the ear with a cotton mounted probe. The probe should be used gently but repeatedly. Inflation of the middle ear may be practiced with caution after the pain and other acute symptoms have subsided. The removal of the secretions is greatly facilitated after the first week by placing in the external canal one or two inches of one-half inch sterile gauze strips with selvaged edges. The distal end of the gauze should be placed in contact with the perforation. The strip should be removed when moist and a fresh one inserted. If the discharge exists over two weeks it is advisable to use 50 per cent alcoholic solution in the canal. It is antiseptic and stimulates the mucous membrane and as such is a remedy of great value.

Constitutional treatment should be looked after in these cases. For the relief of pain codein and aspirin or amytal compound repeated at intervals give relief. One to 6 weeks of daily inspection and appropriate treatment will in most cases result in a complete cure. Less faithful and intelligent attention will result in many cases becoming latent or chronic with the usual sequelae so unfortunate in their effects.

## DISCUSSION

**H. D. Abell**, Paducah: This is a subject which should be of tremendous interest to the general practitioner as well as the otologist, because he is the first to see the majority of these cases and also because of the fact that acute middle ear lesions so frequently come on as a complication or as sequelae to so many diseases for which he is already treating.

Any disease that may result in a fatality or cause a total and permanent loss of function of an organ is serious. Every chronic discharging ear is a living testimony to negligence either on the part of the doctor who handled the case during the acute stage or is due to neglect on the part of the patient himself. Of course, it is impossible to prevent some of the more serious surgical complications which have their origin in an acute infection of the middle ear, no matter how well they are handled. But if one has a thorough knowledge of the underlying pathology and he follows closely the clinical symptoms and signs, not only will many lives be saved, but the patient will be left with a normally functioning ear.

Acute infections of the middle ear do not owe their origin to any specific bacteria. Practically every known pathogenic organism has been found in the discharge from acute middle ear infections. Some of these, of course, might have been secondary invaders. It is a well known fact that the more violent forms of acute ear trouble are caused by certain specific organisms. A state of perfection has not been reached in the study of these cases whereby a definite clinical picture can be assigned to each of the different infecting organisms. However, the streptococcus, especially the hemolytic type, and the pneumococcus type III are organisms which deserve special emphasis. The streptococcus hemolyticus is the organism which is commonly found in the more severe middle ear infections which complicate scarlet fever, measles, septic sore throat and influenza. I mention these two organisms not only because they are more apt to result in serious complications, but also because their clinical courses are always so different.

The streptococcus usually causes very violent symptoms and does its work quickly, while the pneumococcus type III produces very mild symptoms and has a very long latent stage. For this reason the latter is probably more dangerous to deal with than the streptococcus.

The physical signs are also quite different in these two types of infections. The streptococcus shows more marked changes in the drum membrane. All land-marks are completely obliterated, the drum membrane is dark to purplish red and is covered with a blood-tinged serum. Even the skin in the external canal shows signs of infection. The patient often complains of pain or pressure over the mastoid, and there is some pain on moving or pressing on the ear itself. In pneumococcus type III, the changes in the ear drum are not so marked and the color of the drum is a grayish red, the details are indistinct but still present, and these changes may remain the same for quite a long time. There is no pain to pressure about the ear or mastoid and the patient complains very little of anything except probably noises and slight loss of hearing. The feeling you get on doing a paracentesis is different in the latter type. It has been described as a feeling of cutting in bacon.

If the pneumococcus III infection is not recognized, the patient might be allowed to drift along thinking he was getting along fine and suddenly develop a meningitis from which few recover. This is the type of case which should be allowed to wall itself off well before any operative interference on the mastoid is done. An early mastoid in this type of case is the worst thing that can be done to the patient. According to the best authorities, at least four to six weeks should be given before resorting to surgery, and then if a complete mastoid is done at the proper time, ninety-five per cent of the cases can be saved, and if not done at the proper time, ninety-five per cent of the cases will be lost.

In any case of acute otitis media, once the infection is started, which is usually through the eustachian tube, the resulting pathology depends on the virulency of the organism, the resistance of the patient, and the anatomical construction of the middle ear and mastoid. If time permitted, it would be interesting to discuss these cases from the standpoint of the anatomical location of the principal focus in the tympanic cavity. The upper tympanic infections are always more severe than those which appear to localize in the lower middle ear cavity. The cases which recover with little or no treatment are usually of this latter type.

Under respiratory infections lay the foundation for middle ear infections, especially the naso-pharyngeal types. If it were possible to prevent infections of this latter type, middle ear infections would be practically eliminated. This brings me to what I think is most important in preventing serious middle ear infections, and that is the removal of adenoids in children who show any tendency to middle ear trouble. A great deal is heard concerning the removal of tonsils in children, but I believe that the proper removal of adenoids is even more important, especially in this group of cases.

Infants should have their ears watched closely in every case where there is an upper respiratory infection, and also in cases of malnutrition associated with diarrhea and dehydration. Very interesting ear and mastoid findings have been reported by Alden and others in infants suffering from the above-named symptoms.

I will not go into the symptomatology and treatment but would like to emphasize the importance of treating the patient as well as the ear. General hygienic conditions, cod liver oil, vitamines and close attention to the nasal infections will aid greatly in the handling of these cases.

**C. F. Long,** Elizabethtown: I want to emphasize the points brought out in the paper, that as general practitioners we should always carry an otoscope with us and incise these ear drums early. It will not only save your being called out at night, to stop the crying child, but it will save a child possibly from having a mastoid operation later. If you incise a drum too early it is not going to hurt anything, it will grow back in a normal way, but if you let it go too long the child probably as an adult will have bad hearing. I always make a practice to examine these ears in crying children when I cannot find anything else wrong with them, and a great many times there is infection in the middle ear. Early incision will give great relief and will give healing a great deal earlier than if you let it go on and say to the people that in a few days this ear will rupture and be all right. I think that is a great mistake that the general practitioners make, to let these ears rupture spontaneously. I hear a great many doctors talk about letting them rupture themselves. We should not do this.

**W. B. Atkinson,** Campbellsville: So often in very young children there is no pain in these middle ear involvements. We find them more frequently in these cases where we cannot find anything else wrong with them, and we think they may have a middle ear involved.

I should like for the essayist to give us any statistics he may have on the percentage of middle ear involvements after tonsil and adenoid operations, in comparison with those children who have not had them. In the last few years I have had around 600 tonsil operations, and I have never afterwards had middle ear involvement, either early or remote. About one in five after the operation would have some pain in the ear but in latter years I have never seen in any of these cases an involvement of the middle ear, and I would like to know if there are any statistics that he could give us.

**Seldon Cohn,** Fulton: The location and the type of the infection are very essential in knowing when to operate on the middle ear.

I never advise anything except the dry system of treating the ear, and paracentesis. Phenol, if used at all, should be used during the acute stage. The ear drum should be opened as early as possible to avoid any complication. It is very essential indeed to know the location of your involvement of the middle ear and the type of infection when you operate.

**G. W. White,** Henderson, (in closing): In answer to Dr. Atkinson's question as to statistics about pain in ears following tonsillectomies I am unable to give any, probably the patency of the eustachian tube has something to do with the pain. Tonsillectomies have greatly reduced the amount of middle ear infection.

# THE USE OF THE ROGER ANDERSON WELL-LEG COUNTER-TRACTION SPLINT IN FRACTURES OF THE NECK OF THE FEMUR*

Orville R. Miller, M. D.

Louisville.

The author once heard an eminent Kentucky physician say that "many a case of chronic myocarditis has been killed by being put to bed." Whether or not his statement be true, myocarditis is a dreaded complication of fracture of the neck of the femur; and probably accounts for the development of many cases of hypostatic pneumonia. (Among the aged, are other forms of organic heart disease, or systemic disease, or indeed, the state of senility, itself, which may preclude the administration of anesthesia for reduction of the fragments of a fracture of the neck of the femur. Incontinence of the urine and feces, with rapidly forming bed sores and pressure sores, add trials to the already burdensome nursing care. Beginning hypostatic pneumonia calls for haste, if a catastrophe is to be avoided. All forms of fixation, other than sand bags, are discarded. The fragments of the fracture, left to care for themselves, unite in poor position or become separated from each other, as result of the effect of muscle contraction and gravity.

Any of the above mentioned conditions is an indication for the use of some form of treatment such as is exemplified by the Roger Anderson Well-Leg Counter-traction Splint. The ease and rapidity with which it may be applied, shorten the operating time. And the absolute painlessness of its application under local infiltration of novocain, prevents shock.

Before operation, the patient's ankle on the affected side is cleansed surgically and painted with Iodine. After draping, the soft parts and the periosteum over each malleolus are infiltrated with novocain. A Steinman Pin is passed through both malleoli about one inch above the ankle joint. The ends of the pin are inserted into holes, prepared for them, in the stirrup of the splint, and plaster of Paris applied, from the toes to the knee, so as to hold the foot at a right angle to the leg. Plaster of Paris is next applied from the mid portion of the thigh, on the well side, to the toes, and the other stirrup of the splint incorporated in this plaster. The leg, on the affected side, is placed in marked internal rotation and held in this position by adjustment of the stirrup, on that side. Traction is then applied, and the affected side forced into abduction.

Traction and abduction are accomplished simultaneously, by the mere tightening of a wing-nut, on the apparatus. The well leg is used as a fulcrum. Thus, weights and pulleys and other cumbersome forms of apparatus are not necessary. The traction being skeletal in type, remains constant and painless but efficient. Abduction is in direct proportion to the amount of traction applied.

By this form of treatment, one can carry out Whitman's Abduction Method, without the handicaps and inconveniences that accompany a plaster spica. The patient's hips are free, so far as flexion and extension are concerned, but are fixed so that adduction, abduction and rotation are prevented. Therefore, the patient can sit erect in bed, and can be easily moved into another place, or be put into a wheel chair, in order to obtain exercise, in wheeling himself about. All this can be done without causing pain, or injury, at the fracture, and without danger of displacement of fragments.

It has not been the experience of the author that union takes place any more rapidly, nor any more completely, with the use of this splint. It has been found, however, that the apparatus is of great assistance, in the avoidance of keeping the patient lying in bed. Thus, mild exercise may be had daily and hypostatic pneumonia avoided. The fact that the patient can easily move, or be moved, aids the nurse in the prevention, or the cure, of bed-sores and usually prevents the patient from becoming incontinent. It can be used in the most extreme cases because of its being so easily and quickly applied.

## DISCUSSION

**I. A. Arnold, Louisville:** In treatment of fractures of the hip, there are many things to be considered and must be considered before definite procedure of treatment is instituted. The intracapular fractures, except in the very young, will not unite with any apparatus you may use without an open operation and then it is often a failure. Partial intracapsular fractures will unite in a majority of cases if the fracture is put in perfect apposition and is treated by ordinary methods; the trochanteric fractures will unite except in extreme age, regardless of apparatus used if held in proper position. We must consider the debilitating conditions of the patient such as age, the cardiac and renal systems. If it is an old person to whom it is not advisable to give an anesthetic and the fracture is of such type that you feel it is not wise to put the patient in bed for any length of time, I can see where the Rodger Anderson apparatus would come in well, that is, you can use the splint by putting the peg through the leg without having to give a general or spinal anesthetic, adjust the fragments and hold them in fairly good apposition, although, as the essayist says, this does not facilitate union. In some of these cases you will probably have to resort to an open operation before union takes place, the same as in any other external fixation. I can see where it could be used very satisfactorily in intertrochanteric fractures of young people, thereby permitting a change of position of the patient without deleterious effect. This may also be used in a comminuted intertrochanteric fracture when it is impossible to peg the fragments or hold them in position.

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I cannot understand, if you are going to do an open operation, except in these selected cases, why go to a distant area which is not involved and do an open operation in which there are the same chances of infection as if operated on at the site of fracture where you would be able to properly adjust the fragments.

Usually I do not advocate making a compound fracture out of a simple fracture, but I do advise open operation in intracapsular fractures of old people, because if they are put to bed for any length of time, they will die of hypostatic pneumonia or some other disease peculiar to advanced age.

**R. A. Griswold**, Louisville: We have used this method at the City Hospital in some sixteen cases, nine of which were fractures of the neck and the rest fractures of the shaft. I am not enthusiastic about it for fractures of the shaft, but differing from Dr. Arnold, I am enthusiastic about it for fractures of the neck of the femur. We have run into a few difficulties with these cases that I think we have largely overcome.

Dr Anderson's original article advocated the use of a very heavily padded cast. We found that even with that pad we got very bad sores on the sole After experimenting with different forms of padding, we finally came to use a non-padded cast, applying anterior and posterior plaster splints directly to the skin and covering these with circular plaster bandages. That transferred our pressure not only to the sole of the foot, but to every square inch of skin on the leg and thigh of the well side. This method has almost entirely relieved us of pressure sores.

As to the matter of control of the fragments, and union, I think we can control the fragments more accurately with this apparatus than by any other method, with the possible exception of an open reduction. We have checked it under x-ray with the patients in the sitting position and flat on their back and on their side, and found that there is practically no movement at all at the site of the fracture. The fragments are absolutely fixed, no matter what position you put the patient in.

It has not cut down our mortality appreciably. Mortality is largely a matter of nursing care. With this splint nursing care is made easier and I feel it will in the future cut down our mortality. In our small series of cases it was about the same.

**George Hendon**, Louisville: What staggers my comprehension is why one wants to assume these responsibilities and go to all these troubles and subject patients to this inhuman torture of confinement to bed. What is the reason for it? If somebody will just tell me I will be satisfied. Why entomb your patient in a sepulchre of plaster of Paris or why crucify him on the cross of skeletal traction, splinting and suspension? If somebody will just give me one reason why they do these things it will be a great relief to me.

We have a method by which we deal with these fractures, and up to date we have treated fifty-seven cases, and there has never been a mortality that could be associated with the injury or with the method. Our operation can be done in fifteen minutes under a gas anesthesia without any appreciable shock. The patient can be put to bed and allowed to assume any position that he chooses; he can flex the leg as soon as he is out from under the anesthetic; within a week he can flex the leg to an angle of forty-five degrees; within ten days he can flex it to a right angle. He can lie on his side or on his back or on his stomach, or he can lie any way he wants to. I will now show some slides that demonstrate this subject.

The first case was brought to me by Dr. Waldrope from Bessemer, Alabama. It is a fracture through the neck of the femur, with my key inserted. That woman was seventy-eight years old, and six months afterward she fell and refractured the same leg, a sub-trochanteric fracture without disturbing the union that occurred in the neck. We get union without fail in all of our leg fractures as far as we have been able to determine.

The second case is a man approaching seventy, **he had a fracture of the femoral neck. The non-union of two years and two months duration.**

The third shows the key in position. That man was able to bear weight on that in four weeks. He was out of bed in three weeks.

The fourth of the same type, this woman was the youngest case I have had, sixty-one years old. My oldest case is eighty-six years old.

The fifth shows the key inserted, and in three weeks she walks out of the St Anthony Hospital. She had very little pain and no bed sores.

(Slide) I merely put this in to show you another angle. Here is a sub-trochanteric type of fracture, and that occurred nine weeks before

I saw her. She had a Thomas splint on for those nine weeks before I saw her. In that kind of case we go above and drive the key down until it engages in the medullary canal of the lower fragment. In four weeks that woman was up and walking around on crutches, and made a complete recovery.

The plan will work in the presence of non-union. We have used it successfully in the presence of infection. We have one case of fracture of the femur in which non-union had existed three years and ten months, and we secured union in four weeks.

**George H. Ray,** Louiville: The bone key of the hip represents a principle that can be applied to any long bone of the body, regardless of the type of fracture, simple or compound, with or without infection.

Doctors hesitate to do an open operation on bone, because of fear of infection, but we have determined that the bony structure in the body is equally as resistant to infection, if not more, than any other form of tissue in the body. We have made incisions through infected wounds and inserted the bone key and obtained good results. Drainage occurs, but with perfect alignment the bone heals as rapidly as the soft tissues.

The operation is perfectly simple. The nursing is still simpler. The hygiene of the patient while in bed is so simplified that the nurses marvel at the small amount of care that is required to handle the patient.

We have met with only one opposition to our bone key, and that is the results are so remarkable and so out-standing that it is difficult to get anyone to believe it, even after they see it and know it to be a fact. We are still not discouraged at that, because Harvey, Lister, and other great men had their oppositions to over come, and we feel sure we are going to overcome ours.

**Orville R. Miller,** (in closing): In reply to Dr. Arnold's remarks, I would like to call your attention to the fact that this paper stated that this was a method of treatment. There are patients on whom an open operation cannot and should not be done, but as far as the open operation is concerned, at a distant point from the site of fracture, this can really be disregarded, practically speaking, because no incision is necessarily made when the Steinman pin is inserted.

Two per cent novocaine is injected. After the needle has passed beneath the periosteum of the malleolus and the fluid disseminated about the area of the malleolus, above it and beneath the skin, over a distance of a twenty-five-cent piece, not necessarily any larger, without making an incision or a stab wound even with a knife or scalpel, this pin can be pushed directly through the bone from one side to the other, beginning with the internal malleolus and passing out through the external malleolus on the other side, through the skin and all, with absolutely no pain to the patient. The skin and all the soft parts and the bone itself are anesthetized and the patient suffers no pain. Ordinarily we give the patient, depending upon the physical condition, if one is too debilitated and we are a little afraid to give a large dose of morphine, about a sixth of morphine about a half hour before the pin is to be inserted. That, with the novocaine, produces absolute freedom from pain.

A pin going through a puncture wound in the skin, being completely filled, as the wound is by the pin, leaves no room for infection to enter, especially as you will recall these extremities are covered, the entire area is covered, completely sealed hermetically by the plaster of Paris.

If your technic is proper, the kind of technic that should be carried out, there are no germs there in the first place, and later on the germs can't be introduced because the thing is sealed up perfectly tightly.

Most orthopedic men who have operated on patients and do open operations on a fracture, for instance, put plaster of Paris on and never see the wound for six weeks' time. If no infection is there at the time of operation and the plaster is put on and hermetically sealed, the germs can't be admitted and the patient cannot have an infection.

I am very glad to have the remarks of Dr. Griswold on this subject. Dr. Griswold has used this splint in a great many cases there at the City Hospital and it has been my privilege to see some of these patients and I know of the splendid work he is doing there. He has made some modifications of the splint under consideration that are well worth while. To a casual observer it would seem more or less minor, it is true, but it is not minor when it comes to the actual application of the splint and the use of it.

One of his modifications is that he has used a clutch-sort of apparatus for maintaining the internal rotation of the foot, which I think is a splendid thing.

Dr. Hendon is a man for whom I have a great deal of respect, a man I have revered, a man whose lectures I enjoyed, and I have been converted absolutely to his method of treatment of fractures of the neck of the femur wherever one can be treated after such method. I believe it is the method of choice in treating fractures of the neck of the femur if the patient in the first place is in such a physical condition that such an operation can be done; but these patients must have an anesthetic. This can't be done under local infiltration of the skin, as can be done in cases where the well-leg countertraction splint is used. The patient must be in such condition, then, that either a general anesthetic can be administered or a spinal anesthetic given.

There are other instances where this bone peg cannot be used, fractures in which there is an involvement not only of the transverse fracture of the neck of the femur, but where the trochanter of the femur itself is comminuted. I have actually operated on a patient, expecting to put a bone peg in, and found on making the incision, after an x-ray had been made and apparently the trochanter was perfectly normal and intact, as soon as we lifted the periosteum there was a fracture—a fissure sort of fracture, that prevented any introduction of the peg with any idea of its maintaining proper position of the fragments. There is another instance where some other form of treatment must be used for these patients, such as beginning of hypostatic pneumonia. If the patient has a chronic bronchitis or some lung condition that prevents an anesthesia; where a bronchitis or hypostatic pneumonia is apparently beginning, some other form of treatment has to be used..

This method of treatment can be used anywhere; it can be used in the city, in little towns, in the country; wherever a man can clean his hands properly; where he can surgically cleanse his hands and gloves, and do an aseptic operation of such a nature as this, this method will work. The patient doesn't necessarily need a trained nurse. Anybody who can pick up the patient and seat him in a chair can nurse the patient without danger. Dr. Griswold told you that the patient can sit up in bed without any danger of displacment of the fragments. The patient can lift himself up and help himself to get into the chair.

We do recommend this in cases where other forms of treatment are not applicable and cannot be used.

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**Treatment of Erysipelas.**—Vogel states that, in addition to the local treatment of grave and average cases of erysipelas, he has employed in- (generally 25cc.) of a polyvalent, antitoxic and intramuscular injections of from 20 to 100 cc. anti-infectious streptococcic serum. He found that this serum therapy had a favorable influence on the general manifestations of the disease, particularly the temperature, which decreased rapidly. The local manifestations did not yield so readily or they even spread for a day or two after the serum was administered but the pain, erythema and tenseness of the skin were lessened, and the whole process appeared to take a more benign course.

# ADDRESS OF RETIRING PRESIDENT OF THE SOUTHWESTERN MEDICAL ASSOCIATION*

V. L. Powell, M. D.

Paducah.

The pages of history are starred with evidences that nothing is more immortal than many of the exhibitions of mankind's poor judgment. The errors that men make—but not especially applicable to those made by the physician—continue to walk the earth long after they themselves have passed behind the veil of oblivion and have crumbled into the silence of forgotten dust. I promise to detain you for a short time only, making as brief and as light as possible the embarrassment and disappointment of those of you who in an unwise emotional state elevated me to this position.

Living is said to be almost entirely a matter of making adjustments—keeping ourselves constantly in comfortable tune with our individual universe. Remembering that our personal or individual universe is constantly being enlarged.

In earlier days man defended himself against his environment principally by his personal power, was compelled to obtain his sustenance by the employment of his own physical strength. Unless he were strong of muscle he perished. But today "the survival of the fittest" or the success based upon muscle power and physical strength is no more. Never before has strength of muscle in man been of so little consequence. The pioneer's cry was "Give me power;" that of his children "Give us knowledge of ourselves that we may be able to develop the skill in order to make use of the boundless power at our disposal." Then it is not strange that mankind demanded of certain of his fellows attention and skill requisite to keep his body free from pains and from the disability caused by disease.

Probably a century ago the Doctor was seldom called into the home until pain or physical illness had fallen upon some member of the family, then he was expected to bring relief of the suffering and cure of the disease. The patient was looked upon as a physical mechanism. Because of the increased knowledge, new developments, newly discovered facts and principles, disease and complexes, syndromes, therapeutic measures and the mechanizing of this age, I am deeply impressed by the enforced changes that are taking place in the daily work of the physician. The early medical man, the general practitioner or family physician, lived and worked under conditions vastly different from those now prevailing. All of us must appreciate what great good they accomplished and the handicaps under which they practiced. In those days the laboratory methods and their delicate tests and the physical equipment on which we of today rely, were, most of them, unknown. Necessity made those men keen observers, and their own mental faculties were rather alert. He did not allow the question of diagnosis to weigh heavily on his mind, but was seldom in doubt as to what ailed his patient. Therapy was largely symptomatic, rarely specific, and the finer differential diagnosis made little or no change in the outcome of the case. "Common sense" means "Good sense" and the most successful medical therapy is "Common sense."

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*Read before tht Southwestern Medical Society

With the great advances made in medicine, both diagnostic and therapeutic, there is also a demand made by the general public that these aids, instruments and remedial agents be made available for them when they are in need—the application of our discoveries to mankind. The doctor of medicine, today, is given a wonderful training; but what does it profit him or his patient if he does not use it every time he has an opportunity? It is also likely that our modern medical training and elaborate equipment will fail to develop in the doctors of today an independence and resourcefulness on which the earlier men without modern facilities had to rely.

Naturally the question arises, is it humanly possible for one man to master the science and art of medical practice in its entirety? Without doubt it must be answered in the negative. There is not, today, nor do I believe there ever will be, any satisfactory substitute for the really thorough, intelligent, conscientious and sincere general practitioner, who studies each patient until he knows what is wrong with him and applies the indicated remedies. Be it understood that each one of us should be conscious of and recognize the limit of our diagnostic ability and our qualifications for carrying out the indicated treatment. Considering the early practitioner, we must remember that his equipment consisted principally of his well developed five senses and what few instruments and drugs he carried in his saddle bags.

With the later development of bacteriological, chemical and physical methods of diagnosis, the body secretions and excretions are examined, the circulating blood is analyzed, body cavities are explored and inspected and organic function is determined; the x-ray with and without contrast media furnishing valuable information. All of these methods of investigation or examination require special training and experience and time. Even when the diagnosis is made we may be unable to carry out or execute the indicated procedure necessary for cure or relief, because of lack of training and experience. The special senses of the old time physician have been prolonged and intensified many times—though "common sense" remains practically unchanged. Knowledge has accumulated so vastly that no longer is it within the compass of one man to learn and apply all the knowledge or technical procedures that are available. Necessity and demand have brought forward specialization along many lines of medical work. A large number of technicians, non-medical students with a comparatively short course of special training—have been placed in clinical and x-ray laboratories, to relieve us of many of our worries and time consuming technical procedures. Because the modern practice of medicine began to require great expenditures for accessories and equipment, and individual physicians, in many instances, could not supply themselves with all the necessary apparatus and space to carry on these multiple activities, the hospital with well equipped clinical and x-ray laboratories, multiplied rapidly; also there developed many independent laboratories for diagnostic purposes—now more than four thousands. Hospitals have increased at the rapid rate of one sixty-nine bed hospital per day for the past twenty-two years. In 1872 there was one hospital bed for every 817 persons and in 1932 there was one bed for every 124 persons. There are now more than seven thousand class A hospitals. One, or more, hospital is located in each of one thousand, eight hundred and eighty-two (1,882) counties of the total three thousand, and seventy-four (3,074) counties of the United States. Approximately two-thirds of all the counties of the United States claim one or more hospitals. The total bed capacity of these hospitals is about one million (1,014,354) and there were two hundred and five thousand, nine hundred and nine (205,909) idle beds the past year. There are daily in hospitals fifty-six thousand and eighty-eight (56,088) tubercular cases; four hundred twenty-seven thousand, one hundred thirty-five (427,135) nervous and mental cases. One thousand, eight hundred and sixteen Government owned hospitals with a bed capacity of six hundred forty-one thousand, five hundred and twenty-four (641,524), had a daily census of five hundred sixty-nine thousand, three hundred and one (569,301). Other than Government owned hospitals had an average daily census of two hundred and six thousand, and ninety-five (206,095). The daily census in all hospitals about eight hundred and eight thousand, four hundred and forty-five (808,445). On the other hand the total number of patients admitted to Government hospitals was one million, eight hundred and thirty-three thousand, and seventy-eight (1,833,078) as compared with five million, three hundred and twenty-two thousand, eight hundred and ninety-eight (5,322,898) patients admitted to non-Government hospitals. There were more than seven million (7,228,151) patients admitted to hospitals during last year (1932). (Some estimated twelve millions). Two thousand, two hundred and sixty-nine (2,269) hospitals claimed Out-Patient Departments serving eight million, one hundred eighty-six thousand, eight hundred and eleven (8,186,811) patients, with a total of twenty-eight million, nine hundred fifty-eight thousand, two hundred and thirteen (28,958,213) visits. More than seven hundred thousand (710,884) babies were born in hospitals during the past year. Hospital births are increasing at the rate of fifty thousand (50,000) per year. It is estimated that 2 per cent of the entire population or about two and one-fourth million people are sick every day.

There are 160,000 physicians in the United States 116,000 of whom are connected with or have access to some hospital. In 1925, 10 per cent of the physicians in the United States were listed as specialists and in 1930, 25 per cent were listed as specialists. In 1915, 30 per cent of the graduates in medicine became specialists; in 1920, 51 per cent were becoming specialists and today 75 per cent of those studying medicine, before graduating, have already chosen their specialty. Investigation has shown that 85 per cent, or 90 per cent of all cases seen represent the type of disease that any good general practitioner can diagnose and suitably treat without the hospital or extensive laboratory equipment: the remaining 10 per cent or 15 per cent constitutes the class of diseases requiring more extensive study, investigation, hospitalization and treatment, thereby greatly increasing the cost of medical care for this group. We have been accused of over hospitalizing our patients, and the present figures would indicate that we are over specializing. But whatever the American people demand and are willing and can pay for, that they will have. Of course, adjustments will have to be made, which will involve changes in the methods of medical practice, to meet the demands of the public.

Some leaders of today believe that the best type of medical care should be available to all the people for a price that they can afford to pay, but they have not shown that such services can be provided at a price that people can afford to pay—and the ability of people to pay varies widely in different parts of the country. Along that same line of thinking or reasoning, those same leaders might work out some system or systems controlling the supplies of food, fuel, clothing, comfortable homes and working conditions, which might have some bearing or influence on health and thereby make this a better country in which to live.

It should be remembered that "the best medical care" is not furnished by the physician alone but includes hospitals, laboratories, technicians, dietitians, nurses, mechanical appliances and medical agents. All this calls for the expenditure of money and it must be paid by someone; the doctor cannot donate it. He might give freely his personal services but that would be inadequate, as in many cases the cost of the physician's services will amount to only a small percentage of the total cost of "the best medical care." The problem is, how to secure the money necessary to provide good medical care for those who are wholly unable to pay for same.

In the near future we may find ourselves working under conditions not satisfactory to us or our patients; it might be state controlled practice; some form of insurance; contract practice, etc.—but if we are to work entirely under these conditions it is my opinion that within a short period of time "the best medical care" will bear no resemblance to our present "best medical care." In other words the medical standard will be greatly lowered.

Industrial surgery, insurance practice and contract practice have definite fields but should be limited to those fields for which they are best fitted. The family physician always "considers the patient's welfare first," but in some of the other forms of practice it must be added that "in so far as the patient's welfare coincides with advantage to the company or corporation, let it come first."

The family physician of all time has always been concerned with the personal preventive side of medicine and it is becoming increasingly apparent that in the future he will by necessity depend largely for his existence on the practice of preventive medicine, as well as on the treatment of disease. Also we must teach patients that they are to pay for preventive medicine because frequently it is worth far more than treatment.

I would like to emphasize the importance of educating the public to consult their family doctor before seeking the services of a specialist because the family physician will always be the most economical and satisfactory for at least eighty-five per cent of all ailments. Of our total number of physicians, we should have more general practitioners and fewer but well trained specialists.

## THE TREATMENT OF BURNS*

Charles Baron, B. S., M. D.

Covington.

With the ever-increasing problem of burns due to automobile accidents, it seems timely to reiterate a basic physiologic principle in its treatment. First advocated and experimentally shown by the late Underhill and his coworkers, the successful treatment of extensive burns in its first stages depended upon the correction of blood changes resulting from its concentration. The anhydremia, which may reach as much as 70 per cent of the blood volume, with its lowered blood chloride, they found were due to an acute increased capillary permeability.

Upon this basis, the combating of shock appeared the sine qua non of the immediate treatment of burns. It was the good fortune of the writer to have the opportunity to apply this procedure upon two patients who were subsequently treated by their own private physicians, Drs. A. Caldwell and W. Foertmeyer to whom I am indebted for permission in presenting the first two cases. In addition, two other victims of the same accident were brought to another institution for treatment, and to some extent served as a control at least in comparing methods of treatment. In condensed and tabulated form are given the salient features of the cases. Cases three and four were from the other institution.

Case I. H. T., white, 40 years old, admitted per stretcher. Areas burned included the whole head including the neck as well as both hands. First and second degree burns. Fluids: 1000 c. c. N. saline by hypodermoclysis. 2600 c. c. N. saline plus 5 per cent glucose intravenously. 1000 c. c. N. saline proctoclysis. 3000 c. c. water by mouth. Total 8200 c. c. fluid in first 18 hours. 1600 c. c. water by mouth the second night. Treatment of burns in order used: Butesyn picrate, boric acid 3 per cent, bismuth ointment, Dichloramine T, Dakins solution, Chlorozinc, Mercurochrome, and normal salt solution. Miscellaneous: Irrational one hour after admission. Continually asking for water. Fluid given within one hour of admission. Lived.

Case 2. K. B., white, 27 years old. Walked into the hospital. Areas burned: Head and neck, both hands and wrists. Left leg, and right thigh. First and second degree burns. Fluids: 1000 c. c. N. saline subcutaneously. 2000 c. c. N. saline plus 5 per cent glucose intravenously. 1000 c. c. N. saline by proctoclysis. 3000 c. c. water by mouth. Total 7000 c. c. fluid in first 18 hours. Treatment: Butesyn picrate, tannic acid, picric acid 2 per cent, exposure to air, picric ointment, boric acid, bismuth ointment, and dichloramine T. Miscellaneous: Irrational the second night. Continually asking for water. Fluids administered within one hour of admission. Lived.

Case 3. A. T., colored, 62 years of age. Admitted per stretcher. Areas burned: face, arms, buttox, left leg. First degree burns. Fluids: 1000 c. c. N. saline subcutaneously. 990 c. c. water by mouth first 10 hours. Total: 1900 c. c. in first 10 hours. Treatment: Unguentine. Miscellaneous: Fluids begun 3½ hours after admission. Patient was unable to take fluids by mouth 10 hours after admission and nothing given after that, except medication of caffeine and digifolin. Died 23 hours after admission.

Case 4. C. C., colored, 40 years old. Walked into the hospital. Areas burned: back, arms, hands, left leg, first degree burns. Fluids: 1000 c. c. N. saline subcutaneously. 1620 c. c. water by mouth in first 17 hours. Total: 2600 c. c. fluid in first 17 hours. Treatment: Unguentine. Miscellaneous: Fluids begun 8 hours, 45 minutes after admission. Died within 36 hours.

### Comment

Underhill's experience stresses the importance of enough fluid to restore the patient's former blood concentration. Quantities varying from 4 to 8 liters have been generally sufficient. It will be seen in the first two cases that fluids were pushed immediately, the immediacy being just as important as the amount of fluid given. Both of these factors are in striking contrast with cases 3 and 4. Fluids in the form of normal saline when given other than by mouth should be given for the loss of blood chlorides. The blood contraction due to the exudation through highly permeable capillaries into edematous areas should be vigorously corrected by means of water by mouth. With the minimum volume of fluid necessary to induce water intoxication approximating 35 liters according to Underhill, fear of producing untoward effects can be dispelled in the ordinary heroic amounts given.

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*Read before the Campbell-Kenton Medical Society.

# JAUNDICE*

J. Duffy Hancock, B. S., M. D., F. A. C. S.

Louisville.

## Instruction

While it is true that jaundice is only a symptom and not worthy of the designation of an actual disease yet it is such a fascinating subject and presents so many ramifications that one must limit himself to just a few of its phases in any paper of reasonable length. With this in mind the following presentation will be largely confined to a discussion of the metabolism of the bile pigments and its significance in the interpretation of the various tests for jaundice, especially those attempting to differentiate the types etiologically. The actual surgical procedures are familiar to all here and have rather definite indications once the cause of the jaundice has been established. For that reason they will not be considered.

## Definition

Jaundice may be defined as a yellowish tinged discoloration of the body tissues and body fluids, resulting from an increase in the amount of bile pigments found in the circulating blood. The pigment usually concerned is bilirubin which is normally found in the concentration of 1 to 500,000 of 1 to 1,000,000, but which in jaundice is higher than 1 to 50,000. In the very intense shades of jaundice where the color is almost a greenish black the bilirubin has probably been oxidized in part at least, to biliverdin (the green pigment.)

## Historical

Since jaundice is so apparent when well developed, it is not surprising to find references to it even in the earliest writings: Hippocrates refers to "bilious fever." Galen notes the presence of a deep jaundice in cases of cirrhosis of the liver with simultaneous disease of the spleen, the Arabian Nights include a story where mention is made of the "yellowness of the whites of the eyes," etc. Interest and speculation concerning jaundice continued through the various centuries but practically all the real scientific observations have been made during the past 100 years. Gmelin's test for bile in the urine was presented in 1826. In 1847 Virchow, observing the discoloration about hematomas suggested the formation of bilirubin from hemoglobin and the relation of bilirubin to jaundice. Bilirubin was first isolated by Heintz in 1851 and urobilin discovered in urine by Max Jaffee in 1868. The icterus index determination was advanced in 1917 by Blankenhorn and in 1920 by Meulengracht. Van den Bergh's test appeared in 1918. Contemporary contributions are too numerous to consider at this time.

## Metabolism of Bilirubin

Since jaundice is really from a practical standpoint, an evidence of hyperbilirubinemia, a careful consideration of the metabolism of bilirubin is of fundamental importance to an understanding of jaundice. We shall not concern ourselves with the green biliverdin, the bue bilicyanin, and other bile pigments since they are all oxidation products of red bilirubin, the most important of the bile pigments and mother substance of them all.

Bilirubin is a product resulting indirectly from the hydrolysis of hemoglobin. This is substantiated by the fact that bilirubin has the same chemical formula as iron-free hematin (hematoporphyrin) which is produced by treating hemoglobin with concentrated sulphuric acid. The production of bilirubin in the body is brought about largely by the cells of the reticulo-endothelial system especially the following—bone marrow, spleen, and Kupffer cells of the liver. That such production may occur nearly anywhere in the body is evidenced by the pigmentation of bruises. The polygonal secretory cells of the liver do not take part in the production of bilirubin but they do withdraw it from the blood stream and excrete it in the bile—in some way changing it as is shown by the difference in the direct and the indirect Van den Bergh tests. In the actual formation of bilirubin the old, damaged, and disintegrating red blood corpuscles are salvaged by a phagocytic process and probably the iron portion of the hemoglobin is separated in the hydrolytic changes that proceed to the manufacture of bilirubin. The newly formed bilirubin discharged into the blood stream seems to be absorbed by serum globulin—this attachment being freed by the passage of the bilirubin through the polygonal cells of the liver. There is some question as to whether there is a definite chemical change with the conversion of the bilirubin to a salt (possibly with the ammonia radicle.)

When the bilirubin is combined with the bile by the polygonal cells of the liver it passes through the biliary passages to the intestinal tract. There it is converted into hydrobilirubin which is reduced by bacterial action to stercobilin and urobilinogen. Stercobilin forms the principal pigment of the feces. Some of the urobilinogen is absorbed and excreted in the urine. By far the greater part is immediately oxidized to urobilin. So much so is this true that some workers now consider urobilinogen and urobilin as synonomous. The urobilin is then absorbed and utilized in the formation of bilirubin (and possibly hemoglobin), thus completing the metabolic cycle.

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*Read before the Louisville Surgical Society, May 5, 1933.

### Methods of Production of Jaundice

Jaundice, as previously stated, is an evidence of hyperbilirubinemia. For many years it was believed in all cases to be the result of an obstruction to the elimination of the bile with resultant retention of bilirubin as formed. It is now known, however, that hyperbilirubinemia may occur in one or more of several ways.

1. The bilirubin may be formed in normal amount by the reticulo-endothelial cells, withdrawn from the blood in normal amounts by the polygonal cells, and excreted in normal amount in the bile into the biliary passages but due to intrinsic or extrinsic obstruction the normal amount cannot reach the intestinal tract and the retained portion is reabsorbed directly into the blood stream or indirectly through the lymphatics. This is what occurs in obstructive jaundice. The bilirubin which is reabsorbed being bilirubin that has passed through the polygonal cells of the liver.

2. The bilirubin may be formed in normal amounts and there may be no obstruction to the biliary passages but damaged polygonal cells of the liver may not be able to withdraw it in the usual amounts and a varying portion will pass directly into the hepatic veins and accumulate in the general circulation. The resulting type of jaundice is a non-obstructive type — either toxic or infective jaundice.

3. There may be no obstruction of the biliary passages and the healthy polygonal cells of the liver may be able to withdraw normal amounts of bilirubin from the blood stream but due to excessive blood destruction abnormally large amounts of bilirubin will be formed. The excess which cannot be utilized will then pass directly into the hepatic vein and accumulate in the general circulation without passing through the polygonal cells of the liver. The type of jaundice which then appears is also a non-obstructive type, the so-called hemolytic jaundice.

4. Occasionally there may be present in the course of a disease some degree of obstruction and some degree of impaired function of the polygonal cells—at the same or at different times. This probably accounts for some of the unsatisfactory Van den Bergh reactions.

### Test For Jaundice

The following are the most frequently used tests for jaundice. They may serve as qualitative test, quantitative tests, or tests of differentiation between the obstructive and non-obstructive types of jaundice.

1. Icterus Index—obtained by matching fresh blood serum with a standard of Potassium Bichromate solution. Normal=5. Latent jaundice (not apparent in sclera or skin)=1-15. This test is of value in detecting latent jaundice and comparing variations in degree of jaundice. It is a simple test. Remember that carrots in diet may give false positive. It does not differentiate obstructive and non-obstructive jaundice and is based on the principle that normal yellowish tinge of blood serum is due to bilirubin.

2. Bilirubinuria—demonstrated by the ordinary *foam test*, a yellowish discoloration occuring in the foam formed by vigorous shaking of the urine—or by *Gmelin's test*, a series of colored zones appearing at the junction of stratified urine and concentrated nitric acid. While this is not a definitely differential method the threshold of appearance is much more readily obtainable in less concentration in the obstructive type.

3. Van den Bergh Test—depends upon the color reaction obtained when bilirubin is combined with Ehrlich's Diazo Reagent. In the *direct reaction* the blood serum is added directly to the reagent. In the *indirect reaction* alcohol (and ammonium sulphate is added after the serum and reagent have been mixed for two minutes. The indirect reaction will be positive in both obstructive and non-obstructive jaundice and is an excellent quantitative test. The direct reaction may be positive and immediate, delayed, biphasic, or negative. When an immediately positive direct reaction is obtained the jaundice is of the obstructive type since in the non-obstructive type where the bilirubin has not gone through the polygonal cells it is too firmly bound by the serum globulin to react unless an alcoholic solution be made (Indirect reaction).

4. Urobilinuria—detected by the red color and green fluorescence resulting when an alcoholic solution of zinc chloride is added to the chloroform extract of urine. Urobilin is not present in normal urine. It cannot be present in obstructive jaundice since its formation depends upon bilirubin reaching the intestinal tract. Its presence in urine means that there is an excessive amount of blood destruction occurring or that the liver cells are so damaged that they cannot utilize the bilirubin available by normal production. In either instance the urobilin is not metabolized into bilirubin, indicating a non-obstructive jaundice.

In addition to these pigment tests the following are of some aid in differential diagnosis.

1. Fragility Test—the usual method is to test the resistance of the red blood corpuscles to hypotonic salt solution. A drop of blood is placed in each of a series of tubes containing the salt solution in various percentage strengths. At the end of two hours the tubes are inspected for hemolysis. Normal readings show beginning hemolysis at .44% and complete hemolysis at .34%. In hemolytic jaundice there is an increased fragility, (or decreased resistance), whereas in obstructive jaundice and both primary and secondary anemia the resistance will be normal or slightly increased rather than decreased.

2. Sedimentation Test—increased and more rapid sedimentation of the red blood corpuscles in citrate solution occurs in the acute or severe infectious diseases—offering some information of differential diagnostic value.

### Summary

In concluding it might again be emphasized that jaundice is an important and useful symptom when present. It is one of nature's sign posts and if thoroughly understood and carefully studied by the tests available it can prove of great value in diagnosing cases which would be quite obscure were jaundice absent.

## BOOK REVIEW

THE SURGICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every other month.) Volume 13, No. 4. (Mayo Clinic Number—August 1933) Octavo of 215 pages with 65 illustrations. Per clinic year, February 1933 to December 1933. Paper, $12.00; Cloth, $16.00 net. Philadelphia and London: W. B. Saunders Company, 1933.

Mayo Clinic numbers are always eagerly sought for and this volume measures up to the excellent standard of all medical literature from that famous clinic. It is splendidly illustrated.

SURGICAL CLINICS OF NORTH AMERICA: (Issued serially one number every other month.) Volume 13, Number 3. (Lahey Clinic Number—June 1933) 275 pages with 98 illustrations. Per Clinic Year (February 1933 to December 1933) Paper $12.00; Cloth $16.00 net. Philadelphia and London: W. B. Saunders Company, 1933.

The following subjects are discussed in this excellent volume from the well known Lahey Clinic: Surgery, Neuro Surgery, Orthopedic, Gastro-Enterology, Anesthesia, Problems in Medicine, Urology and Oto-Laryngology. The most outstanding article is by Dr. Sara Jordan on Cancer of the Colon. This is valuable book for the general surgeon's library.

THE STORY OF CHILDBIRTH—By Dr. Palmer Findley—Price $3.00. 376 pages with 124 illustrations. Doubleday, Doran & Co., Inc., Publishers.

The deplorable lack of correct information on the part of most women in sexual matters and especially in regard to the anatomy and physiology of the sexual organs, the development of the baby and what really occurs during labor and the lying-in period, is proverbial. This book furnishes such information, in a concise and easily understood manner with profuse illustrations on such matters as birth control, child spacing and prenatal care. The dangers of criminal abortion and the venereal diseases are touched upon and the progress in the conduct of child birth from earliest times to the delivery in the up-to-date maternity hospital are graphically described. Explanations are given of all of the superstitions formerly and even now connected with child birth, fertility and maternal impression. The history of the mid-wife and trained nurse is given and especial mention and due credit given to the wonderful Frontier Clinic Service organized here in Kentucky by Mrs. Mary Breckinridge.

The book has an attractive appearance, is profusely illustrated with good large print and written with authority by one of the foremost obstetricians and gynecologists of this country. It should interest doctors and nurses because it gives the history of obstetries in one concise volume from the earliest days to the present time.

Edward Speidel, M. D.

THE SURGICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every other month.) Volume 13, No. 5 (Chicago Number—October 1933). Octavo of 254 pages with 93 illustrations. Per clinic year, February 1933 to December 1933. Paper, $12.00; Cloth, $16.00 net. Philadelphia and London: W. B. Saunders Company, 1933.

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NEXT MEETING HARLAN

## COUNTY SOCIETY REPORTS

**Fayette:** Resolutions adopted by the Fayette County Medical Ssociety upon the death of Dr. Lee Collins Redmon.

The death of Dr. Lee Collins Redmon on the 27th day of October 1933 brought to an untimely close the life service of an accomplished physician, a devoted husband and father, a loyal friend, a good citizen and a Christian gentleman and an honored and useful member of the Fayette County Medical Society. We the members of this society feel individually and as a society that our profession and the community at large has sustained an irreparable loss.

Dr. Redmon by his consecrated work in his profession, conscientious service, skill and untiring efforts has made a deep and lasting impression on the lives and hearts of those of his profession and the community. He was taken when in the prime of life. He was an honor to his profession and a power for good to the community.

His profession was the essence of his religion, he met and surmounted all obstacles with great fortitude, he has made of them stepping stones for his ascent and over them climbed to the honored place he enjoyed.

We know that death is as good as life and just as natural, while we are saddened by his passing and our hearts are wrapped in sorrow at the loss we have sustained we are not ungrateful or unappreciative of the splendid example and influence he has left us and we acknowledge ourselves greatly enriched by his contribution to the profession.

We sorrow with his bereaved family, their loss is our loss, yet both they and we are richer in experience because we have known and loved him. May the memory of his life be a benediction to all who knew him.

Let it be the wish of this society now met in special session upon the day of his death that this memorial be spread upon it's minutes and that a copy be sent to his bereaved family, to the Journal and the daily papers for publication.

J. P. WARREN,
CLARENCE DeWEESE,
E. B. BRADLEY.
Committee

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**Grant:** The Grant County Medical Society had its usual meeting in an all day lecture course at Williamstown, October 18, 1933, from 10:00 A. M. until 4:00 P. M.

This is a real Extension Course given the doctors of Kentucky at stated intervals, by up-to-date Specialists from Louisville.

Our program was as follows:

11:20-11:40—Encephalitis.—Dr. Simpson.
11:40-12:00—Fractures.—Dr. Strickler.

### MORNING SESSION

**A Joint Discussion of Thyroid Disease**

10:00-10:40—Diagnostic Considerations.—Dr. Virgil Simpson.

10:40-11:20—Indications and Preparations for Surgery, and Post-operative Results—Dr. F. P. Strickler.

### AFTERNOON SESSION

A Joint Discussion of Gall Bladder Disease

1:00-1:40—Diagnostic Study—Dr. Simpson. •

1:40-2:20—Surgical Care—Dr. Strickler.

2:20-3:00—Clinic or Round Table Discussion.

3:00-3:30—Cardiac Arrhythmiays.—Dr. Simpson.

3:30-4:00—Varicosed Veins.—Dr. Strickler.

The members of our Society were all in attendance and included Drs. A. D. Blaine, H. F. Mann, J. J. Marshall, J. L. Price, J. D. George, C. D. O'Hara, C. M. Eckler, N. H. Ellis, J. W. Abernathy and C. A. Eckler.

Invited guests were:

B. K. Menefee, Covington; J. M. Stolland, Sparta; J. A. Caldwell, Southgate; C. W. Northcutt, Covington; J. P. Chamberlain, Cynthiana; Joseph Martin, Cynthiana; T. E. Bedinger, Walton; J. M. Rees, Cynthiana; J. P. Wyles, Cynthiana; A. E. Threlkeld, Wheatley; E. E. Devillez, Covington; W. A. McKinney, Falmouth; George Purdy, New Liberty; W. A. Allphin, Georgetown; J. W. Shupert, Warsaw; C. M. Hubbitt, Louisville; George T. Henry, Berry; John G. Renaker, Covington; O. W. Brown, Falmouth; J. H. Caldwell, Newport; C. W. Shaw, Alexandria; C. A. Menefee, Coxington; J. E. Wilson, Butler; J. E. Dawson, Newport; J. E. Wilson, Falmouth; Webb Suter, Campbellsburg,; C. A. Langdale, Cincinnati; H. V. Johnson, Georgetown.

The men who conducted the course were: Dr. Virgil Simpson and Dr. Frank Strickler, two gentlemen of high type and all round M. D's., Dr. Simpson handling the Medical side and Dr. Strickler the Surgical

The morning session was held by lectures in the court house and the afternoon in the theater where the lectures were illustrated by movie films. These two gentlemen were not only masters of their subjects but had a unique and intelligent way of imparting their knowledge to others. We certainly thank these gentlemen for their day's work with us and invite them back at some future time.

There were not many clinical cases presented, but two that Dr. A. D. Blaine presented, one of Varicose Ulcer and an Adolescent Goiter, which were interesting. We want to thank Dr. Blaine for his thoughtfulness.

We wish to thank Mr. and Mrs. P. J. Clements for the nice dinner they had prepared for us at the Donald Hotel.

We also wish to thank Mr. Henry Juett for the use of his theater and his kindness in helping to make our meeting a success.

One face absent at this meeting in the person of W. J. Zinn though practicing Dentistry was also a Doctor of Medicine and always attended our meetings. But just a few days before this meeting he was called to the Great Beyond and we shall miss his familiar handshake and word of good cheer.

Dr. C. D. O'Hara and Dr. C. M. Eckler were appointed to draft resolutions of Respect for him to be read at our next meeting.

Topic for next meeting, "Discussion of Gall Bladder." Discussion opened by Dr. C. M. Eckler.

We now adjourned to meet the third Wednesday in November at 7:30 P. M.

C. A. ECLKLER, Secretary.

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**Lawrence:** The Lawrence County Medical Society met in regular session, with the President, Dr. J. D. Thompson, presiding, and the following members and doctors present: J. J. Gambill, A. M. French, W. R. Bishop, L. S. Hayes, and Lieut. M. C. Archer, Med-Res., who is with the C. C. C. camp.

Some letters from the State Board of Health were read and discussed, after which Dr. Archer presented a paper on "Infantile Cerebral Palsy," reporting a case and its management with results. The paper was very instructive, and was enjoyed very much by those present.

Election of officers for the ensuing year was then taken up, resulting as follows:

L. S. Hayes, President; W. R. Bishop, Vice President; A. M. French, Secretary.

The Society then adjourned until the regular meeting Friday, November 3.

L. S. HAYES, Retiring Secretary.
Retiring Secretary.

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**Jefferson:** The following is the December program of the Jefferson County Medical Society:

December 4th

Meeting under the auspices of the Louisville Tuberculosis Association. (Name of speaker to be announced later.)

December 18th

Annual Dinner Meeting. Reports of Officers and Committees. Election of Officers for 1934.

CHARLES M. EDELEN, Secretary,
I. T. FUGATE, President.

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### NEWS ITEM

W. F. Prior Company, Inc., Hagerstown, Maryland, has informed Doctor Cowley, of Berea, that a man representing himself as J. P. Adair is trying to sell physicians in Kentucky Tyce and Dean Lewis Loose leaf volumes. The Prior Company says that Adair does not represent them and the physicians should have no dealings with him in regard to any of their matters.

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UNDER THE SUPERVISION OF THE COUNCIL

VOLUME XXXI

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1933

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# KENTUCKY MEDICAL JOURNAL—PART II

## WOMAN'S AUXILIARY SECTION

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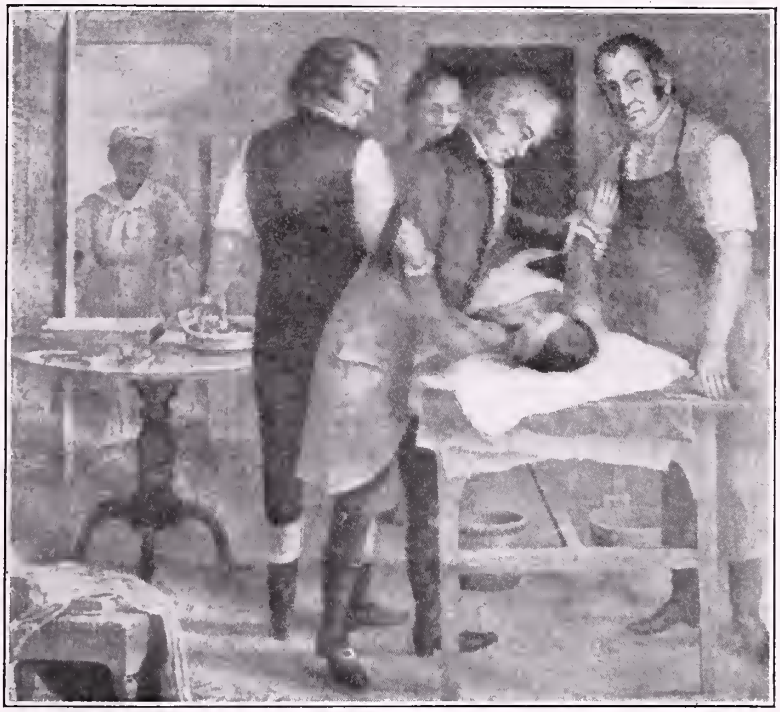

From Dr. J. N. McCormack's "Some of the Medical Pioneers of Kentucky."

## THE FIRST OVARIOTOMY

From the Dunlap copy of the woodcut made from his pencil sketch by Dr. Alban Gold Smith, present at the operation, a pupil and assistant of Dr. McDowell. From right to left Ephraim McDowell, Alban Gold Smith, James McDowell, a nephew, pupil and associate of Dr. McDowell, his assistant at this operation; and Dr. William Coffer (?), an associate, later a partner of Dr. McDowell. The Dunlap copy hangs in the rooms of the State Historical Society in the Old Capitol at Frankfort.

OCTOBER, 1933

## OFFICIAL DIRECTORY

# Woman's Auxiliary

## TO THE

# Kentucky State Medical Association

## 1933-1934

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| Dr. V. A. Stilley,<br>Benton | Dr. A. T. McCormack,<br>Brown Hotel, Louisville | Dr. W. E. Gardner,<br>Heyburn Bldg., Louisville |

ANNUAL MEETING, HARLAN, 1934

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First Vice-President—Mrs. C. A. Menefee, 302 Earl Avenue, Covington.

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Third Vice-President—Mrs. H. V. Usher, Sedalia.

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Corresponding Secretary—Mrs. Luther Bach, 325 Taylor Avenue, Bellevue.

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Parliamentarian—Mrs. G. S. Brock, London.

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Archives—Mrs. George A. Hendon, 615 Brown Building, Louisville.

Child Health and Welfare—Mrs. Philip F. Barbour, 1304 South Sixth Street, Louisville.

Finance—Mrs. R. L. Collins, 405 East Main Street, Hazard.

Hygeia—Mrs. E. R. Palmer, Puritan Apartments, Louisville.

Jane Todd Crawford Memorial—Mrs. A. T. McCormack, 1422 Brown Hotel, Louisville.

Legislation—Mrs. L. L. Washburn, Benton.

Organization—Mrs. C. A. Menefee, 302 Earl Avenue, Covington.

Public Instruction—Mrs. E. B. Houston, Murray.

Public Relations—Mrs. C. H. Jones, Lynn Grove.

Radio—Mrs. John L. Jones, 1911 Roanoke Ave., Louisville.

Tuberculosis—Mrs. Lucius E. Smith, 439 Fairlawn Road, Louisville.

Historian—Mrs. V. A. Stilley, Benton.

### WOMAN'S AUXILIARY SECTION

Editor—Mrs. A. T. McCormack, 1422 Brown Hotel, Louisville.

Business Manager—Mrs. Peter Guntermann, 674 South 40th Street, Louisville.

KENTUCKY MEDICAL JOURNAL—PART II
WOMAN'S AUXILIARY SECTION

519 Tenth Street Bowling Green, Ky.
Vol. II October, 1933 No. 3

Editor, Mrs. Arthur T. McCormack, Louisville

Business Manager, Mrs. Peter Guntermann, Louisville

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## ATTENTION!

Your attention is called to the new name under which our publication is to be known hereafter. Dr. W. E. Gardner, member of the Advisory Council, suggests that we soon adopt, for economic reasons a standardized cover. What are your suggestions? Please send your suggestions to the Editor, soon.

The Audit of our Finances, the Directory of the County Auxiliaries and the Proceedings of the Eleventh Annual Meeting are timely and of special interest to every member. But, of course, you will find every item in this issue vitally important to your Auxiliary work.

The delegate's report of the Annual Meeting of the American Medical Auxiliary will appear in the January issue.

## HYGEIA

Hygeia is of interest especially to mothers. The articles in food, health habits, emotional and behavior problems of children, children's diseases and pre-natal care have all proven to be very valuable to her. In fact, Hygeia is invaluable in helping mothers in the home education of the children in reference to health, games and play, early mental development and information of moral habits. Hygeia provides the knowledge of healthful living from babyhood to old age.—Pauline Haley.

## THE PRESIDENT'S MESSAGE

**Mrs. B. K. Menefee, Covington.**

When this copy of **The Quarterly** reaches you the State Meeting at Murray will be over. I shall have been installed into the office of President and you will have placed in my hands the gavel, an emblem of authority and action which I hope you will never have cause to regret.

The year is before us filled with opportunities. Whether much or little is accomplished by our Auxiliaries remains to be seen. Alone, the work that presents itself for our earnest consideration would prove impossible of accomplishment but with the help and co-operation of each individual member, together with a proper insight of the work at hand, I hope our efforts will meet success in whatever we find to do.

To those who have been elected to office or who have received appointments as Chairmen of Committees, my hope and prayer is that you study well the work intrusted to you, prepare yourselves to impart knowledge to those who will look to you for help and instruction.

By eleven years of earnest labor our predecessors have the work well established, our field of usefulness is great and our aims are high but in order to succeed we need to arouse a greater interest in the minds and hearts of the wives, daughters, mothers, widows and sisters of every member of the Medical Profession in Kentucky. Many of these women have never given the work of the Auxiliary much, if any, serious thought. It is our hope to carry the work of the Auxiliary into every County in Kentucky that has a Medical Society. We realize that those who have preceded us have made an earnest effort to do this, in fact have blazed a trail for us to follow. May we prove ourselves good scouts, pick up the trail and go forward during this our year.

May we ever keep in mind that we are an Auxiliary Organization, take council of our Advisory Boards, be ever ready to do that which they deem best and most necessary in our several counties to meet such conditions as may arise from time to time.

Our tasks, in a general way, will be outlined and sent to each organization for your consideration.

I shall greatly appreciate any suggestion you may make to increase our usefulness and that would create more interest in our Auxiliary activities.

Again thanking you for the honor you have conferred upon me, I am yours in service always.

---

**Our advertisers want to know that you saw their offer in The Woman's Auxiliary Section. Tell them whenever you make a purchase from them.**

# -:- EDITORIALS -:-

## OUR ANNUAL MEETING

The Annual Meeting for 1933 is over. And, a remarkably good meeting it proved to be. Held at Murray State Teachers College, Murray, a charming little city in the western part of the State, comfort, good food, good service and every attention were given us by the gracious school staff and the neighborly, hospitable citizens of Murray who demonstrated in so many unmistakable ways a genuine pleasure in having us share their joy of living in that particular section of the world, which, they vow, is the best place on earth. And, after our recent happy experience at the spacious and beautiful Murray State Teachers College we wonder who could disagree with them.

The attendance was gratifying, 88 registered at Murray compared with 97 in Louisville, the metropolis, last year. The business meetings and the Board Meetings were well attended by women concerned in the work of the Auxiliary and its methods of procedure. Interest in Auxiliary activities is increasing as the possibilities of this unified group become more apparent. The aims of the Auxiliary are better understood each year and the functionings of the County unit are crystalizing in form so that we actually know how to work together more easily and more effectively. That vagueness about a new type of organization is fast disappearing. We have a workable Constitution and By-Laws for the State and the flexible outline form of a Constitution and By-Laws that may be adapted to fit the needs of each County; the duties of officers are defined, a definite form of program has been developed, covering a wide choice of subjects to attract the diversified interests of members with varying tastes, all bound together by the common bond of endeavor in furthering the aims of the medical profession. The meeting in Murray was a real demonstration of the definite interest existing among the women of the families of Kentucky physicians in the humanitarian, self-sacrificing work of the medical profession.

## VALEDICTORY

### Mrs. A. T. McCormack, Louisville

As this issue of our Supplement to the Kentucky Medical Journal goes to press, we are, many of us, preparing for the Annual Meeting which is to be held in Murray, September 11-14. There we hope to meet you, renew old friendships and foster new ones. There we hope to review our work and its results during the past year and, profiting by this experience, make plans for the promising new year that opens opportunity for great accomplishment before us. It is fervently to be hoped that we may each recognize our opportunities as they present themselves in their varied forms and make good use of them!

When this, the October issue of our Supplement reaches you, our new President, Mrs. B. K. Menefee, will already have been installed in office and, with her new officers supporting her, will have presented her program to you for the coming year. May I, here, bespeak for Mrs. Menefee your whole-hearted support in her work as our Administrative Leader? You have responded so splendidly to all of my needs and to all of my requests, making the work, even the monotonous routine, a genuine pleasure and privilege, that I deeply desire the same happy experience for her. The little attentions, the thoughtful considerations you have graciously shown me will keep the memory of my year as your President one of the happiest in my experience. For Mrs. Menefee, I confidently cherish the same joy for I know your love and loyalty for the Auxiliary, of which she is our chosen Commander-in-Chief during the coming year.

## PRESIDENTIAL ADDRESS*

### Mrs. B. K. Menefee, Covington

To the Officers and Members of the Woman's Auxiliary to the Kentucky State Medical Association:

My dear Friends:—

You have conferred on me the highest honor that can be given to a member of the Auxiliary and I wish to assure you that I appreciate this honor and the privilege of serving you as your President the ensuing year. I also realize that with these privileges come many responsibilities and these I assume with humility and the hope that I shall have the help and co-operation of each member of the State Auxiliary.

I fully realize the wonderful abilities of my predecessors in this work and what has been accomplished by their efforts in our beloved State. They have laid the foundation for us and built well thereon from year to year ever enlarging their scope of usefulness as new work presented itself, grasping every opportunity to further our growth and to show themselves a power for good in their service to humanity. I beseech you, the new Officers and Members, lend us your aid that we may neither falter nor fail in taking the work from their hands but be able to carry to fruition their plans left to us.

---

*Address delivered following Installation as President, September 13, 1933, at Annual Meeting, held in Murray.

We have for our inspiration The Kentucky State Medical Association and the principles for which it stands. Let us strive to be worthy of the trust they have placed in our hands and fulfill with credit any task they deem us capable of performing.

To be sociable and form a strong bond of fellowship among the families of Physicians is one of our aims. We Doctors' wives have much in common. We have had to learn to be patient, self-sacrificing, thoughtful for the welfare of others, forgetting the things we long to do, that our Doctors may give of their time and talents to those who are ill and in distress, then be ready to cheer and comfort them when they return to us worn out in mind and body.

We need the social contact that the Woman's Auxiliary gives us. Here we may have some time for play and help to lighten the burdens of active duty, here we may study together the problems that confront humanity, so that we may help to disseminate knowledge to those less favored than ourselves concerning Health Laws and the prevention of disease, knowledge so essential and from which so much good may result both at present and to generations yet unborn. Let us strive to raise the standard of health in our communities. There is much real work for us to do if we but look for it.

Outside of our general plan, to be outlined later, I have no special work for each Auxiliary, as conditions in different sections of the State must govern your activities. I am hoping you will do all in your power to interest as many as possible in our work for as your strength and number increase, so will the work of the State grow, for without each of our County Organizations doing their work, we will fail to function properly.

Let us have for our ultimate goal an Auxiliary to every Medical Society in the State of Kentucky.

The question is so often raised as to what is necessary to organize an Auxiliary; first, obtain permission from the County Society to organize, ask them to appoint an Advisory Board of three of their members, who will help and advise you. Let them know that you are willing and anxious to do anything that they will suggest for the benefit of your County. The Chairman of Organization is ready to help by sending such literature as she has to help you and an appeal to the President will bring a response and help for you in any way within her power. Be willing to work and I am sure success will crown your effort.

Just here I want to give you a message from our National President, Mrs. James Blake, of Minnesota who said in part, "Let each County Auxiliary find and stress one thing if possible, always remembering that we aim **never** to tear **down** but to back every worth while and authentic Health Project or Agency in a county, always remembering every group must **lead** or be **led**, so be the **leaders**, always under the advice of your Advisory Council in every Community Health Project."

Wherever possible, co-operate with churches, schools, clubs and societies to further authentic health work and secure a better understanding of odr Health Laws, so that we may help to conserve the health of the rising generation and protect them from the many dangers that are ever near.

Plan your meetings; have a diversified program, so all may find an interest and be willing to take part, always keep in mind that whatever you put into a project of any kind you wlll derive benefit accordingly.

The State Officers and Chairmen of State Committees are ready at all times to help you. Write to them for advice and material for your Organization.

No message from a State President would be complete without mention of "The Jane Todd Crawford Project." This should be of vital interest to the members of our Kentucky Auxiliaries. Since our last meeting a library has been founded and named for her in Greenburg, near her old home. Any book you care to donate to them will be greatly appreciated.

Progress is being made on the Highway in Kentucky named in her honor. This is supposed to follow the trail over which she traveled to Danville en route to Doctor McDowell's home. So you see, we have much to be proud of in Kentucky in the way of Memorials but we are anxious to have a National Memorial in honor of this heroic woman, who suffered so much that the vision of Dr. Ephraim McDowell could be made a reality, thus giving to the world a method of relief for suffering humanity, which has brought and will bring health and happiness to many persons.

We should be proud to honor this noble woman for her courage and faith which helped her to undergo this operation without an anesthetic of any kind. Let us tell the story whenever we have the opportunity and arouse the interest of those who have never heard of this Kentucky woman, so that some time there may be a National Memorial for this heroic woman. May we women of Kentucky do our part to make this project a success.

Let us prove our loyalty to Hygeia, the Health Magazine, sponsored by the American Medical Association. By subscribing for it through your County Chairman of Hygeia, you help your local Auxiliary; much benefit may be derived from the use of this magazine to further our work, as it contains articles of much value and many suggestions that will help us from month to month in our Auxiliary work.

Finally, let us work together, encourage each other in every way possible that we may lift ourselves and others out of our present difficulties and help to construct a sounder terrain for the future.

At no time in the world's history have women been faced with such responsibilities. Let us prove that we are able and willing to meet them and be a real power for good.

As individuals, and in organizations, we can render valuable service to the Medical profession as opportunity presents itself. Let us be alert and ready for any duty presented to us by our Advisory Boards. All things are ready, for the year before us, by your help and co-operation we will go forward with hope, courage and faith in God for the future welfare of this organization.

## REPORT OF THE BIRMINGHAM MEETING OF THE WOMAN'S AUXILIARY TO THE SOUTHERN MEDICAL ASSOCIATION, BIRMINGHAM, ALABAMA, NOVEMBER 15-18, 1932

**Mrs. V. A. Stilley, Benton, Delegate**

The ninth annual meeting of the Woman's Auxiliary to the Southern Medical Association, held in Birmingham, opened at ten o'clock, Wednesday morning, November 15, 1932, with the Executive Board meeting at the Tutwiler Hotel, Mrs. Charles E. Oates, President, presiding. So well had the officers of the Southern and of the Jefferson County Auxiliary functioned during the year that only a short session was necessary. The usual routine business was conducted. The minutes do not show any thing of importance transpiring. At the close, Mrs. Estes H. Hargis, President of Woman's Auxiliary to the Medical Association of the State of Alabama, invited all members of the Executive Board, and Kentucky's new member, Mrs. C. F. Coogle, to be luncheon guests at her home Thursday. The opening session of the general meeting was introduced with a luncheon in the Ball room of the Tutwiler at 12.30 P. M. The assembly was large, some three hundred guests present. The Invocation was offered by Dr. Charles Clingman, Rector of the Church of the Advent, Episcopal.

Addresses of welcome came from the President of the Jefferson County Auxiliary, Mrs. John M. Akin, and the State President, Mrs. Estes H. Hargis. Mrs. Charles E. Oates, President of the Woman's Auxiliary to the Southern Medical Association, was introduced to the assembly Response was made by Mrs. A. A. Herold, President-Elect. Then one happy minute followed another in rapid succession. We were given a real musical treat by artists from the Birmingham Conservatory, directed by Miss Dorsey Whittington. Mrs. James Newton Brawner, in her own charming way, introduced the guests of honor. We cannot take the space to name them all, there were so many, but our own most loved present President, who is a past President of the Southern, was among the number. Each and every address deserves mention. Inspirational? Yes, indeed it would be very fitting to call it "An inspirational luncheon," such a world of good thoughts did the brief speeches carry. However, they have all been published in the Southern Medical Auxiliary Bulletin, containing the proceedings of the meeting, with which many of you have long ago familiarized yourselves. But, in passing we must emphasize some, at least, of the good points from the address of the President of the Southern Medical Association, Dr. Lewis J. Moorman, "Read good books, which will give you a knowledge of the service you desire to be to your husband, and his chosen profession. A liberal education can be obtained and a genuine service could be better rendered by a knowledge of the long and honorable record of the profession. Read "Man and Medicine"—"The Great Physician" "History of Medicine in the United States" and several of the other helpful books." This address will be found in the S. M. A. Bulletin. We can only touch the high spots. The General Meeting held in the Educational Building of the First Baptist Church Thursday morning, 9:00 A. M. was called to order by the President. The Invocation was offered by Dr. R. H. Crossfield of the First Christian Church. Roll call by States revealed that Kentucky was second in attendance, Alabama exceeding by only five. Reports from States and standing committees were very gratifying. From a close study of the reports we find that Kentucky "did not do so bad." The President, Mrs. Oates was quite elated over the gift from Mrs. A. T. McCormack, a red bound volume containing the copies of "The Quarterly" for 1932. Following the conclusion of business came the election of officers and the installation of the President. (See Directory for officers). Meeting adjourned to meet in Richmond, Virginia, November 14-17, 1933.

The hospitality and entertainment could not be excelled. All the women with whom we came in contact seemed to vie with each other to make our stay a happy one. We no longer wonder why Birmingham is called "The Magic City." For surely the good fairies were all about with their magic wands to gratify our every wish before it could be expressed. Even our very thoughts were interpreted. The President's Ball at the Country Club was indeed a gathering of knights and ladies. Mrs. Hargis' luncheon was beautiful in its informality. Old friends found the time for a renewal of "Auld lang syne," new friends met and became more intimately acquainted with other visiting Auxiliary members and with the members of our host

Auxiliary who had effectively planned these many happy hours of entertainment. We fain would have lingered longer at this luncheon, but a drive over "The Magic City" had been arranged for three o'clock. Beautiful!

We quite agree that Birmingham is second to none in its wonderful boulevards, its verdant valleys, its mountain range, its architecture. And, most assuredly, Birmingham people cannot be excelled for their hospitality.

Immediately following the drive, a delightful tea at the Country Club was enjoyed. Then, we hurried to get ready for the closing entertainment. Of that, we feel our utter inability to give you a description. We have heard Bishops, Archbishops and most of the famous Evangelists, but never were our hearts so stirred or had we felt nearer the Gates of Heaven than during the two hours we sat in that large auditorium, where we saw and heard our Southern negroes portray their conception of Heaven and Hell in their original spiritual drama, "Heaven Bound." We are grateful for the opportunity of witnessing such a wonderfully realistic portrayal of God's gift to our dark skinned brothers.

On our way to the hotel after the Drama we learned that Dr. Irvin Abell had been elected President of the Southern Medical Association, and that news truly brought to a close "A Perfect Day" for the Kentucky folks.

---

## CHATTING

**Mrs. John C. Rogers, Louisville**

(With a "Curtsy" to and a Smile of Appreciation for our Advertisers)

Mrs. Jim Jones, (sinking wearily into her antique wing chair "made over" so perfectly by Bittner) "So glad you dropped in for a gab-fest, Anna!"

Anna: (Mrs. Tom Brown) "All dolled up for your trip, Mary?"

Mary: "Yes. Almost. At least, Dr. Litsey has done wonders for my feet and look at these new Crutcher-made teeth! They hit." Both laughed.

Anna: "We leave tomorrow. I must go to the drug store and stock-up the emergency kit."

Mary: "Telephone and save time. Medical Arts, Louisville Apothecary, Model or Frankel will flash it to you."

Anna: "I'm so busy."

Mary: "Busy? How can you be busy? Living at the Fort Nelson Hotel first, then at the Weissinger Gaulbert! And, in the Lafayette when in Lexington! Seeking variety, you dine at Benedict's, the Blue Boar or Goshen Gardens. You haunt the Alice Lace Shop. Lucille and Adornee marcel, facial and manicure you. Your husband keeps Haupt, Marret Miller and Walker busy bringing you flowers. Ha! Do I spy another chic hat from Shenley-Gordon's? I do." Chuckles from both and a nibble of fudge.

Anna, sadly: "Weren't the flowers lovely for Mattie's funeral at Cralle's? The service, too?" Both sigh and are silent for a moment.

Mary cheerfully changing the subject: "Anna, do wear one of those stunning creations from Hannan's or a Jaglowicz masterpiece when you sit for that portrait at Berry's or Standiford's. Now, you still must buy that snappy luggage at Taylor's and be off and away!"

Anna: "Uh-huh. Your house looks new."

Mary: "It is, almost. B. J. Johnson, J. D. Jennings, Frey's, Strassel-Gans, Stege and Jenkins have done their part. It took Meffert's Corona Adding Machine to total up our bills. While all this was going on, weeks, of course, several of my three children fell ill or fell down bruised and broke themselves. Arm for Jack, you know. So that the doctors actually sent specimens to the Haley Laboratory in Covington and used Gilliland's Tetanus Anti-Toxin when Sally skinned her shin. But—that's all over, now. And, accidents and illnesses will happen."

Anna: "Yes. That's why we went to see Milliken-Plamp and the Mutual Benefit Health and Accident Association and bought some protection. And, even, the Fidelity and Columbia Trust Company about Tom's will! How do you like my Bifocals?"

Mary: "Just fine."

Anna: "I went to Muth, Howe, Ball and the Southern Optical trying to escape Bifocals. I didn't. I like them, now. Mary I believe you need them. Anna Belle Doolittle makes your figure look like a young girl's."

Mary: "I'm dieting. We get such rich pasteurized milk, certified for Sally, from Ewing-Von Allmen and the Kentucky Dairies."

Anna: "H'm! I've dined here. Dieting? Butterman's or Wolf's ice cream, Denunzio's fruit, Young's best foods and Bread? Donaldson's Bond, Honeycrust! And, Hampton's Crackers!"

Mary, laughing: "Don't forget how we stuff on that perfect Trigg County ham. And—I diet!"

Anna arose to leave: "I sent those club programs to the Times-Journal Publishing Company and sent **The Quarterlies** to the Kentucky Book Manufacturing Company for binding. I saw Bush-Krebs about that engraving, too."

Mary, joyfully: "Oh, good. I'm glad. Why, here's the Home Laundry, The Swiss Cleaners and the Klean Kleaners all arriving with our things. Good work. Such Service!"

Anna: "Anything else?"

Mary: "Yes. Dr. Jones has to visit Tafel's and Brooks-Denhard's about some intruments he is ordering. That't all."

Anna, gaily glancing at her entrancing new wrist watch from Krull's: "Tom is waiting for me at Roche and Roche's. A wonderful place to buy! I must stop at Hurry-Up Broadway for a tire check. Then, at The Wilderness Book Shop for some light fiction. Keep that girlish figure, Mary, if you have to starve. So 'long, dear."

# THE JANE TODD CRAWFORD MEMORIAL

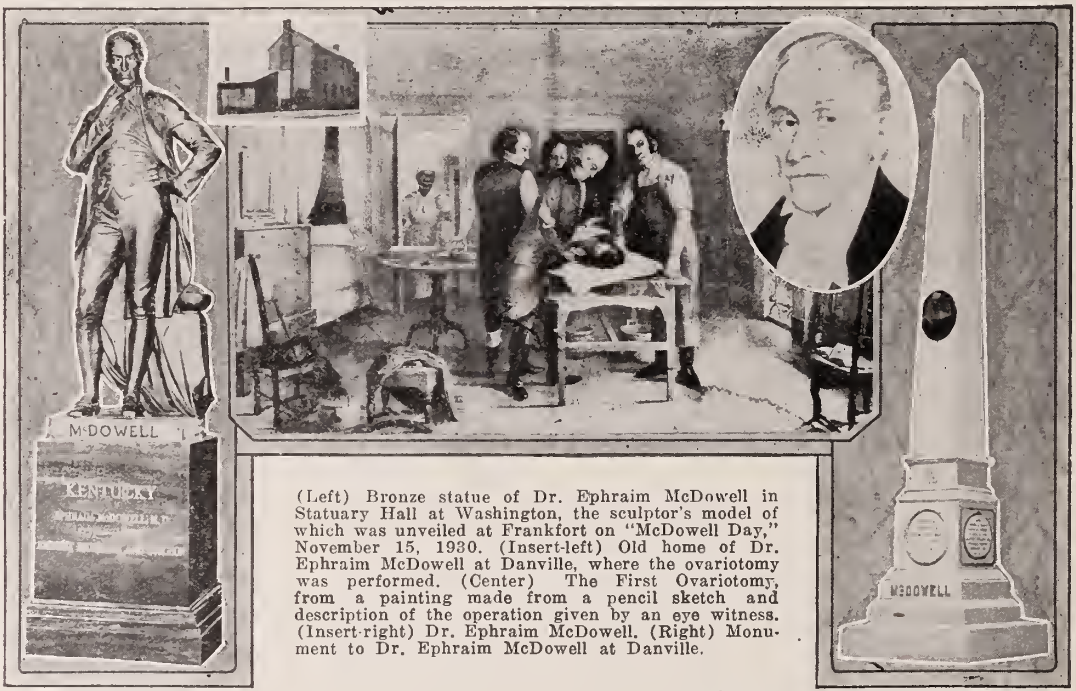
## Jane Todd Crawford At Chicago Fair

At the Annual Luncheon of the American Medical Auxiliary, held at the Hotel Pfister, Milwaukee, June 14th, Dr. Eben Carey described the splendid medical exhibits in the Hall of Science at A Century of Progress in Chicago, calling special attention to the Mayo Foundation's graphic exhibit and to the vivid exhibit of the American College of Surgeons which includes a reproduction, modified, of the scene depicting "The First Ovariotomy." The figures or statuettes, in this picture developed in three dimensions, are exqdisitely made, partichlarly that of Dr. Ephraim McDowell, and show up well against the neutral background provided in a large black frame.

Above this realistic picture is a small brass plate bearing the following inscription: "Ephraim McDowell (1771-1830) Danville, Kentucky, performing the first abdominal operation. This was done in the home of the doctor on Jane Todd Crawford. The operation was performed in December 1809, without anesthesia or antisepsis. The patient made a good recovery and lived for 33 years."

Not far from this exhibit of the American College of Surgeons, begins the exhibit of The Mayo Foundation. Here, again, is found another version of "The First Ovariotomy." This is a photograph 9 x 11, depicting the "Then" in a "Then and Now" exhibit of surgical procedure. Auxiliary members and their husbands, particularly their husbands, will find these two exhibits the type that lingers long in the memory and that makes one grateful, even, as one marvels at the rapid strides made in surgery since that heroic experiment of December 25, 1809.

The following gracious letter giving us permission to reproduce the Mayo photograph will interest all Auxiliary members. Unfortunately, our funds do not allow for the cost of this "cut" now but the photograph, viewed by several attending the Murray meeting, where it was also shown as an exhibit, will be placed in our Archives.



(Left) Bronze statue of Dr. Ephraim McDowell in Statuary Hall at Washington, the sculptor's model of which was unveiled at Frankfort on "McDowell Day," November 15, 1930. (Insert-left) Old home of Dr. Ephraim McDowell at Danville, where the ovariotomy was performed. (Center) The First Ovariotomy, from a painting made from a pencil sketch and description of the operation given by an eye witness. (Insert-right) Dr. Ephraim McDowell. (Right) Monument to Dr. Ephraim McDowell at Danville.

Courtesy of Southern Medical Journal

The letter follows:

Section of
Orthopedic Surgery

Mayo Clinic
Rochester, Minnesota
July 11, 1933

My dear Mrs. McCormack:—

As I promised you in Chicago, I am enclosing under separate cover the Salerno Club version of "The First Ovariotomy. This "latest portrait" of Dr. McDowell and of Jane Todd Crawford is, as you remarked, freed from the 19th century moral prohibitions which hushed this noteworthy operation among even those who were intimately concerned at the time. Prof. Knapp,* with his poignant interest in the affairs of Dr. McDowell, apparently dared not illustrate any of the details of this gynecologic procedure. Consequently it now seemed fitting to modernize and to depict more accurately this memorable event for the ultra-modern Century of Progress Exposition. Dr. Alverez, (W. C.) who superintended the Mayo Foundation exhibit for the World's Fair, felt that nothing could be more appropriate in the "Then and Now" series, so popular at the Fair, than to compare the first ovariotomy with a characteristic modern surgical operation. Therefore, he proposed to the Salerno Club that they should dramatize this event as he imagined it had taken place. He procured appropriate costumes and enlisted the aid of an obstetrical patient who graciously consented to embody the fearless Jane Todd Crawford. * * * * * * * * * * * * * * * * * * *

The result was, for the purpose of the exhibit, highly satisfactory. Students of the lore of Jane Todd Crawford may question the accuracy of the arrangement of this scene or may hesitate to accept entirely the details; but I daresay most surgeons would agree that this was about as the operation took place.

You asked about the Salerno Club and its activities. As you well know, interest in general medical history is a quite sporadic growth and it tends to wide fluctuations. Such likewise has been the case in Rochester. A number of years ago, a group of young staff members were ardently pursuing the study of medical history for their pleasant diversion. Later they called themselves the William Osler History Society. However, with the increasing press of duties, they were finally forced to abandon this fascinating avocation and the local interest in medical history waned. Then, about six years ago, a group of Fellows of the Foundation organized their own club, the Salerno Club, to follow up this early medical historical interest. This group is still in active existence. They meet monthly during the winter and, at each meeting, discuss rather comprehensive papers prepared on some one phase of medical history. The members make no claims to undue novelty and as yet have done no outstanding original investigation.

However, in two successive years they have presented very interesting Pageants of Medical Heroes, an idea which was initiated by Dr. Frank K. Boland of Atlanta. The first pageant portrayed a group of ancient medical leaders and explained their claims to fame. The second described great American medical characters. In this latter group Dr. McDowell was, of course, represented. The actor of the part graphically explained the pathetic but heroic spectacle of Mrs. Crawford riding into Danville on horseback, after a long arduous trip, with her huge abdomen supported on the horn of the saddle. It was quite impressive. The material was taken principally from Dr. Schachner's book and it was our greatest source of information on this subject.

I trust that this answers most of the questions you had in mind. I assure you it is a pleasure to be of any aid to the Woman's Auxiliary of Kentucky.

Sincerely yours,
Walter Goodloe Stuck, M. D.

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*Professor George Kasson Knapp painted, in attractive colors, the scene first sketched in pencil by Dr. Alban Gold Smith, a pupil of McDowell's and an eye witness of the great experiment. The pencil sketch he later reproduced, in a wood cut. Still later lithographs appeared. Prints of one of these lithographs was widely distributed by Reed and Carnrick, a drug firm in Jersey City, New Jersey. Two copies of the wood cut print are known to exist. One, the gift of Mrs. Fayette Dunlap, Danville, hangs in the State Historical Society's rooms in the Old Capitol at Frankfort, Kentucky. (Editor's Note).

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## HISTORIAN'S CORNER

## DR. JOHN CRITTENDEN NISBET

### A Biographical Sketch, Written by His Daughter, Mrs. Ruby Laffoon

Dr. John Crittenden Nisbet was born in Hopkins County, Kentucky, December 9, 1831 and died in January, 1883. He was of Scotch-Irish descent. Graduated from the Eclectic School of Medicine in Cincinnati he immediately began the practice of Medicine in Claysville, now Clay, Webster County, Kentucky.

During the Civil War, he was taken prisoner and taken to Johnson's Island and while there administered to the sick and wounded. When liberated, he returned to Madisonville, Kentucky. While practicing here he married Miss Pemberton, who died about one year later, leaving an infant about two months old, whom his eldest sister, Mrs. Amos Bassett, reared. This child died at the age of 21 years from tuberculosis, as did his mother.

Dr. Nisbet then moved to Clinton, Kentucky, where he married Miss Mary Catherine Bryant, (English parentage), of Elizabeth, New Jersey. (Miss Bryant's father was a cousin of William Cullen Bryant, the poet). To this union, six children were born. Mary Nisbet, Mrs. Ruby Laffoon, the third child, was born at Clinton.

In the fall of 1877, Dr. Nisbett, with his family, moved to Waco, Texas. Here, he practiced medicine until a short time before his death. After one year of declining health, his brother, Dr. S. Rhea Nisbet, took him to Dawson Springs, Kentucky, for his health. He gradually grew worse, was taken to the home of his brother, W. A. Nisbet, in Madisonville, and two weeks later, at the age of 52, he passed away. He was buried in "Grapevine Cemetery" near Madisonville.

## EXTRACT FROM THE AUDITOR'S REPORT TO THE COUNCIL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

I have also examined the records of Mrs. Edna R. Krieger, Treasurer of the Woman's Auxiliary and Business Manager of The Quarterly, and find them correct as set forth in the schedules herewith submitted.

Respectfully,

(Signed) B. P. EUBANK.

## WOMAN'S AUXILIARY TO THE KENTUCKY STATE MEDICAL ASSOCIATION

### EXHIBIT "A"

| | | | | |
|---|---|---|---|---|
| **RECEIPTS** | | | | |
| Gross dues received | $ 73.50 | | | |
| Less Refunds | 3.50 | $ 70.00 | | |
| Less American Medical Association Auxiliary dues | 28.25 | | | |
| Less Southern Medical Association Auxiliary dues | 17.00 | 45.25 | | |
| Net State Dues Received | | | $24.75 | |
| Miscellaneous Receipts | | | 1.80 | |
| Kentucky Medical Journal, Commission on Advertisements | | | 16.88 | |
| Total Net Receipts for 1932-33 | | | 43.43 | |
| **DISBURSEMENTS** | | | | |
| Books, Supplies and Posters | | $ 13.40 | | |
| Printing, Stationery and Cards | | 24.70 | | |
| Postage | | 19.58 | | |
| Stenographic Service | | 2.15 | | |
| Flowers | | 10.00 | | |
| Government Tax | | .44 | | |
| Total Disbursements | | | $70.27 | |
| Net Loss on 1932-33 Operation | | | $26.84 | |
| Balance on hand September 1, 1932, First National Bank, Bardstown Road Branch, Louisville | | | 140.46 | |
| Balance on hand September 1, 1933, First National Bank, Bardstown Road Branch, Louisville, (Checking Account) | | | | $113.62 |
| **SAVINGS ACCOUNT** | | | | |
| The Louisville Trust Company, Louisville (Bank Closed) | | | $102.56 | |
| The Louisville Trust Company Certificate of Deposit Cashed | | | 57.98 | |
| | | | | $57.98 |
| Balance in Closed Bank | | | $44.58 | |
| Balance, First National Bank, account of Jane Todd Crawford Memorial Fund | | | | $605.82 |

### EXHIBIT "B"

JANE TODD CRAWFORD MEMORIAL FUND

### 1932-1933

| | | | | | |
|---|---|---|---|---|---|
| | Balance Forward, August 1, 1932 | | | | $570.05 |
| 1932 | | | | | |
| August 8 | Proceeds from Card Party and Bridge Lessons | | | $ 12.90 | |
| August 26 | Little, Mrs. W. T., Marshall County Auxiliary | | | 5.00 | |
| Sept. 13 | Little, Mrs. W. T., Marshall County Auxiliary | | | 1.00 | |
| | Receipts for Year | | | $ 18.90 | |
| 1932 | | | | | |
| Dec. 31 | Interest | $ 8.52 | | | |
| 1933 | | | | | |
| June 30 | Interest | 8.96 | $ 17.48 | | |
| | Less Government Tax | | .61 | 16.87 | |
| | Total Receipts for Year | | | | $ 35.77 |
| | Total Receipts to date, Agreeing with Bank Balance | | | | $605.82 |

### EXHIBIT "C"

PAID MEMBERSHIPS TO SEPTEMBER 1, 1933

| | 1931 | 1932 | 1933 |
|---|---|---|---|
| Allen | 4 | 4 | .. |
| Ballard | 3 | .. | .. |
| Calloway | 3 | 2 | 6 |
| Campbell-Kenton | 18 | 26 | 24 |
| Graves | .. | 11 | .. |
| Hardin | 9 | .. | .. |
| Jefferson | 162 | 198 | 36 |
| Letcher | 8 | .. | .. |
| McCracken (Disbanded 1931) | 3 | .. | .. |
| Marion | .. | 11 | .. |
| Marshall | 8 | 6 | .. |
| Nelson | .. | .. | 8 |
| Perry | 29 | 24 | 27 |
| Whitley | 7 | .. | .. |
| State at large | 7 | 7 | 17 |
| Totals | 261 | 284 | 118 |

(Membership fiscal year changed to January 1st)

## EXHIBIT "D"

Detail Statement of Receipts and Disbursements of Mrs. Edna R. Krieger, Treasurer, Woman's Auxiliary, Kentucky State Medical Association, from September 1, 1932 to September 1, 1933:

| Date | Item | Receipts | Disbursements |
|---|---|---|---|
| 1932 | | | |
| Oct. 22 | Balance Forward | $140.46 | $ |
| Oct. 22 | Dues Collected at Annual Meeting<br>State at Large, 6 members, Jefferson County 6 members, (Breckenridge County) State at Large, 2 members | 14.00 | |
| Oct. 27 | Check No. 1, Mrs. R. W. Tomlinson, A. M. A., Dues, 1931-32 | | 11.50 |
| Oct. 27 | Check No. 2, Bureau of Maternal and Child Health, Posters | | .25 |
| Nov. 1 | Dues, Nelson County, 8 members | 4.00 | |
| Nov. 4 | Check No. 3, Mrs. Henry F. Page, Memory Mrs. Freeman | | 10.00 |
| Nov. 4 | Check No. 4, Mrs. Mabel Mason, S. M. A., Dues, 1931-32 | | 9.00 |
| Nov. 16 | Check No. 5, Mrs. R. W. Tomlinson, A. M. A., Dues, 1931-32 | | 3.50 |
| Nov. 21 | Check No. 6, Times Journal Publishing Company, Stationery | | 17.20 |
| Nov. 30 | Dues, Mrs. C. P. Coogle, State at Large | 1.00 | |
| Dec. 5 | Check No. 7, Pauline C. Haley, Express sending Supplies to new State Treasurer | | 2.85 |
| Dec. 5 | Dues, Perry County, 12 members | 6.00 | |
| 1933 | | | |
| Jan. 3 | Currency for Postage | | 1.00 |
| Jan. 3 | Check No. 8, Mrs. J. Newton Hunsberger, Handbooks | | 9.00 |
| Jan. 9 | Dues, Jefferson County, 1 member | 1.00 | |
| Jan. 11 | Dues, Jefferson County, 33 members | 16.50 | |
| Jan. 11 | Check No. 9, Mrs. H. W. Venable, Rebate on Dues Collected, State Meeting | | 3.50 |
| Jan. 11 | Check No. 10, Mrs. W. K. Kannard, Supplies for State Historian, Mrs. W. E. Fallis | | 1.25 |
| Jan. 11 | Dues, State at Large, Mrs. J. T. Reddick | 1.00 | |
| Jan. 31 | Dues, Campbell-Kenton County, 8 members | 4.00 | |
| Feb. 15 | Dues, Perry County, 12 members | 6.00 | |
| Feb. 25 | Dues, Campbell-Kenton County, 7 members | 3.50 | |
| Mar. 1 | Handbook, Perry County | .60 | |
| Mar. 6 | Handbook, Graves County | .60 | |
| Mar. 19 | Dues, Calloway County, 4 members | 2.00 | |
| Apr. 10 | Dues, Campbell-Kenton County, 4 members | 2.00 | |
| Apr. 18 | Check No. 11, Mrs. A. T. McCormack, Postage for Chairman, Public Inst., Mrs. E. B. Houston | | 6.07 |
| Apr. 18 | Check No. 12, Mrs. A. T. McCormack, Postage and Supplies | | 9.66 |
| Apr. 18 | Check No. 13, Mrs. J. W. Hunsberger, 1 Handbook | | .40 |
| Apr. 18 | Check No. 14, Mrs. W. B. Majors, S. M. A., Dues | | 8.00 |
| Apr. 18 | Check No. 15, Mrs. Robt. W. Tomlinson, A. M. A. Dues | | 13.25 |
| May 1 | Check No. 16, Mrs. J. Newton Hunsberger, Filing Cards | | 2.50 |
| May 4 | Dues, Calloway County, 2 members | 1.00 | |
| May 4 | Dues, Perry County, 3 members | 1.50 | |
| May 10 | Dues, Campbell-Kenton County, 5 members (2 for 1932-33; 3 for 1933) | 3.50 | |
| May 31 | Check No. 17, Times-Journal Publishing Company, Stationery | | 7.50 |
| May 31 | Dues, Jefferson County, 9 members (8 for 1932, 1, 1931) | 4.50 | |
| June 5 | Handbook, Marion County, Paid by Mrs. Cleaver, Lebanon | .60 | |
| July 6 | Dues, State at Large, Mrs. C. P. Coogle, 1933-34 | 1.00 | |
| July 11 | Dues, Jefferson County, 2 members | 1.00 | |
| July 13 | 25 per cent Commission on ad, Kentucky Medical Journal | 16.88 | |
| July 13 | Government Tax on Checks | | .44 |
| July 17 | Check No. 18, Mrs. R. L. Collins, Stenographic Work, Etc., Finance Comm. | | 2.15 |
| | Total Receipts | $232.64 | |
| | Total Disbursements | | $119.02 |
| | Balance on hand, First National Bank, Bardstown Road Branch, Louisville | | 113.62 |
| | | $232.64 | $232.64 |

## EXHIBIT "E"

Collections and Disbursements by Mrs. Edna R. Krieger, Business Manager, on Account of The Quarterly, Supplement to The Kentucky Medical Journal, corresponding with checks, deposits and receipts filed, from August 26, 1932 to July 20, 1933.

| | | | |
|---|---|---|---|
| **RECEIPTS** | | | |
| Balance on hand, August 26, 1932 | | $ 40.24 | |
| Receipts from Advertisers, August 26, 1932 to July 20, 1933 | | 866.22 | |
| Donations | | 43.00 | |
| Total Receipts | | | $949.46 |
| **DISBURSEMENTS** | | | |
| Disbursed for compiling, printing and mailing The Quarterly to date | | $ 927.30 | |
| Government Tax | | .08 | $927.38 |
| Balance in Liberty Bank and Trust Company, 4th Avenue Branch, Louisville | | | $ 22.08 |
| Accounts Receivable: | | | |
| 1932 Accounts | $ 84.00 | | |
| 1933 Accounts | 336.59 | $ 420.59 | |
| Accounts Payable | | 100.00 | 320.59 |
| Gain on The Quarterly | | | $342.67 |

## EXHIBIT "F"

### DONATIONS TO THE QUARTERLY

| Date | Donor | Amount |
|---|---|---|
| 1932 | | |
| Nov. 7 | Mrs. A. W. Davis, Madisonville | $ 2.00 |
| Nov. 15 | Perry County, by Emma Gross, Secretary, ($5.00 Med. Soc. and $5.00, Wom. Aux.) | 10.00 |
| Nov. 21 | Marion County Auxiliary, Mrs. Thos. F. Cleaver, Lebanon | 1.00 |
| | Mrs. O. M. Crenshaw, Lebanon | 1.00 |

| | | |
|---|---|---|
| | Mrs. T. I. Campbell, Lebanon | 1.00 |
| | Mrs. H. R. Wilber, Lebanon | 1.00 |
| Nov. 27 | Mrs. Henry Enos Tuley, Louisville | 1.00 |
| Dec. 1 | Mrs. J. L. Jones, Louisville | 1.00 |
| Dec. 16 | Mrs. E. B. Houston, Murray | 1.00 |
| 1933 | | |
| Jan. 12 | Nelson County, by Mrs. J. I. Greenwell, New Haven | 5.00 |
| Feb. 18 | Mrs. C. W. Garrison, Little Rock, Arkansas | 1.00 |
| Feb. 27 | Campbell-Kenton Auxiliary, Mrs. B. K. Menefee, Covington | 1.00 |
| | Mrs. C. A. Menefee, Covington | 1.00 |
| | Mrs. Luther Bach, Bellevue | 1.00 |
| Apr. | Mrs. H. C. White, Latonia | 1.00 |
| June 15 | Mrs. Wm. Black, Memphis, Tennessee | 1.00 |
| June 15 | Mrs. B. F. Byrd, Nashville, Tennessee | 1.00 |
| June 15 | Mrs. C. P. Corn, Greenville, South Carolina | 1.00 |
| June 15 | Mrs. Frank W. Cregor, Indianapolis, Indiana | 1.00 |
| June 15 | Mrs. W. O. Floyd, Nashville, Tennessee | 1.00 |
| June 15 | Mrs. Wm. Lett Harris, Norfolk, Virginia | 1.00 |
| June 15 | Mrs. S. S. Hesselgrave, St. Paul, Minnesota | 1.00 |
| June 15 | Mrs. J. N. Hunsberger, Norristown, Pennsylvania | 1.00 |
| June 15 | Mrs. H. R. Miner, Falls City, Nebraska | 1.00 |
| June 15 | Mrs. Edw. Clay Mitchell, Memphis, Tennessee | 1.00 |
| June 15 | Mrs. J. Bonar White, Atlanta, Georgia | 1.00 |
| July 13 | Mrs. A. A. Herold, Shreveport, Louisiana | 2.00 |
| July 20 | Mrs. S. Chaille Jamison, New Orleans, Louisiana | 1.00 |
| | Total Donations for 1932-33 | $ 43.00 |

## EXHIBIT "E-2"

Supplementary Report of Collections and Disbursements by Mrs. Edna R. Krieger, Business Manager, on account of **The Quarterly**, Supplement to The Kentucky Medical Journal, from date of Audit, July 20th, 1933 to September 8, 1933.

Balance due and paid on 1932 and 1933 accounts from July 20, 1933 to September 8, 1933

| Firm | Agent | Due on Contract | Paid |
|---|---|---|---|
| Adornee Beauty Salon | Mrs. A. T. McCormack | $11.25 | $ 5.62 |
| Ball Optical Co. | Mrs. G. A. Hendon | 11.25 | 11.25 |
| Cowherd, J. W., Cadiz, Ky. | Mrs. A. T. McCormack | 6.50 | 6.50 |
| Crutcher, T. M. Dental Depot | Mrs. Irvin Abell | 8.44 | 5.62 |
| Doolittle, Anna Belle | Mrs. Irvin Abell | 6.50 | 6.50 |
| Goshen Gardens | Mrs. A. T. McCormack | 6.50 | 6.50 |
| Isler, Louis | Miss Nancy Aud | 6.25 | 6.25 |
| Jaglowicz, Jos. | Mrs. A. T. McCormack | 11.25 | 8.43 |
| Model Drug Co. | Mrs. David Cohen | 11.25 | 5.62 |
| Muth Optical Co. | Mrs. G. A. Hendon | 11.25 | 2.81 |
| Peter & Burghard Stone Co. | Mrs. A. T. McCormack | 18.75 | 6.25 |
| Strassel-Gans Paint Co. | Mrs. Irvin Abell | 11.25 | 5.43 |
| Stults Motor Co. | Mrs. O. P. Miller | 60.00 | 5.00 |
| Swiss Cleaners | Mrs. Irvin Abell | 11.25 | 11.25 |
| Walker, Wm. | Mrs. Irvin Abell | 11.25 | 8.43 |
| | | | $101.46 |

### CONTRIBUTIONS RECEIVED FROM JULY 20, 1933 TO SEPTEMBER 8, 1333

| | | |
|---|---|---|
| July 24, | Mrs. W. C. Pool, Cary Miss. | $1.00 |
| Aug. 9, | Mrs. Willard Bartlett, St. Louis, Mo. | 1.00 |
| Aug. 16, | Mrs. A. B. McGlothlan, St. Joseph, Mo. | 1.00 |
| Sept. 1, | Mrs. Robt. Fitzgerald, Wauwatosa, Wis. | 1.00 |
| Sept. 5, | Mrs. James Blake, Hopkins, Minn. | 1.00 |

### RECEIPTS

| | | |
|---|---|---|
| Balance on hand July 20, 1933 | $22.08 | |
| Receipts from advertisements from July 20, to September 8, 1933 | 101.46 | |
| Receipts from donations from July 20, to September 8, 1933 | 5.00 | $128.54 |

### DISBURSEMENTS

| | | |
|---|---|---|
| Aug. 10, To, Mr. J. G. Denhardt, Publisher, balance on July issue | $100.00 | |
| Aug. 16, To, Mrs. A. T. McCormack, Editor, for Postage | 3.06 | $103.06 |
| Balance in bank. | | $25.48 |

## EXHIBIT "E-3"

### Detail of Advertisements Secured For Publication

1933

| Firm | Agent | Contract | Paid |
|---|---|---|---|
| Adornee Beauty Salon | Mrs. A. T. McCormack | $ 6.50 | $ 6.50 |
| Adornee Beauty Salon | Mrs. A. T. McCormack | 11.25 | .... |
| Alice Lace Shop | Mrs. Irvin Abell | 6.50 | 6.50 |
| Buttermann Ice Cream Co. | Mrs. G. A. Hendon | 19.60 | 19.60 |
| Blue Boar Cafeteria | Mrs A. T. McCormack | 6.50 | 6.50 |
| Berry, John T., Photographer | Mrs. A. T. McCormack | 11.25 | 11.25 |
| Ball Optical Co. | Mrs. G. A. Hendon | 11.25 | .... |
| Bittner's, Geo. Sons | Mrs. Irvin Abell | 11.25 | 11.25 |
| Benedict, Jennie C., & Co. | Mrs. Irvin Abell | 20.00 | .... |
| Burghard Peter Stone Co. | Mrs. A. T. McCormack | 25.00 | 6.25 |
| Cowherd, J. W. & Co. | Mrs. A. T. McCormack | 6.37 | 6.37 |
| Cowherd, J. W. & Co. | Mrs. A. T. McCormack | 6.50 | .... |
| Cralle, Lee E. & Co. | Mrs. A. T. McCormack | 11.25 | 11.25 |
| Cox, W. E., Insurance | Mrs. David Cohen | 6.50 | 6.50 |
| Crutcher, T. M. Dental Depot | Mrs. Irvin Abell | 11.25 | 2.81 |
| Denunzio Fruit Co. | Mrs. G. A. Hendon | 20.00 | 20.00 |
| Donaldson Baking Co. | Mrs. A. T. McCormack | 11.25 | 11.25 |
| Doolittle, Anna Belle | Mrs. Irvin Abell | 6.50 | .... |
| Denhard, Brooks Surgical Co | Mrs. Irvin Abell | 11.25 | 8.43 |
| Ewing Von-Allmen Dairy Co. | Mrs. A. T. McCormack | 34.30 | 34.30 |
| Fort Nelson Hotel | Mrs. A. T. McCormack | 11.25 | 11.25 |
| Frey Planing Mill Co. | Mrs. A. T. McCormack | 11.25 | 8.43 |

| | | | |
|---|---|---|---|
| Frankel, H. M. Drug Co. | Mrs. Irvin Abell | 11.25 | .... |
| Gilliland Laboratories | Mrs. A. T. McCormack | 60.00 | 60.00 |
| Goshen Gardens | Mrs. A. T. McCormack | 6.50 | .... |
| General Baking Co. | Mrs. G. A. Hendon | 16.66 | 16.66 |
| Grocers Baking Co. | Mrs. G. A. Hendon | 13.00 | .... |
| Haupt, Fred, Florist | Mrs. A. T. McCormack | 20.00 | 5.00 |
| Haley, Miss Pauline, Laboratory | Miss Pauline Haley | 11.25 | 8.43 |
| Howe, T. J. & Co. | Mrs. G. A. Hendon | 11.25 | 8.43 |
| Hannan, Gowns | Mrs. Irvin Abell | 11.25 | 11.25 |
| Home Laundry | Mrs. Irvin Abell | 20.00 | 5.00 |
| Hurry-Up-Broadway | Mrs. Irvin Abell | 20.00 | 15.00 |
| Johnson, B. J. & Sons, Lumber | Mrs. A. T. McCormack | 11.25 | .... |
| Jaglowicz, Jos. A., Gowns | Mrs. A. T. McCormack | 11.25 | .... |
| Jennings, J. D., Contractor | Mrs. A. T. McCormack | 11.02 | 11.02 |
| Kentucky Book Mfg. Co. | Mrs. A. T. McCormack | 20.00 | .... |
| Kentucky Dairies, Inc. | Mrs. A. T. McCormack | 11.25 | 11.25 |
| Klean Kleaners | Mrs. O. P. Miller | 6.50 | 6.50 |
| Krull, E. A., Jeweler | Mrs. Irvin Abell | 6.50 | 6.50 |
| Louisville Apothecary | Mrs. G. A. Hendon | 11.03 | 11.03 |
| Litsey, Dr. U. Z., Chiropodist | Mrs. G. A. Hendon | 11.25 | 8.62 |
| Lafayette Hotel | Mrs. Irvin Abell | 11.25 | 11.25 |
| Lucile Shop | Mrs. Irvin Abell | 11.25 | 11.25 |
| Model Drug Co. | Mrs. David Cohen | 11.25 | .... |
| Medical Milk Commission | Mrs. G. A. Hendon | 20.00 | 20.00 |
| Meffert Equipment Co. | Mrs. G. A. Hendon | 11.25 | 11.25 |
| Medical Arts Prescription Shop | Mrs. David Cohen | 11.02 | 11.02 |
| Marrett & Miller, Flowers | Mrs. Irvin Abell | 11.25 | 2.81 |
| Milliken, Plamp & Co. | Mrs. Curt H. Krieger | 35.00 | 35.00 |
| Muth Optical Co. | Mrs. G. A. Hendon | 11.25 | .... |
| Roche & Roche | Mrs. Irvin Abell | 6.50 | 6.50 |
| Southern Optical Co. | Mrs. A. T. McCormack | 19.60 | 19.60 |
| Stege-Jenkins Brass Co. | Mrs. Irvin Abell | 6.50 | 6.50 |
| Standiford Studio | Mrs. Irvin Abell | 11.25 | 5.62 |
| Shenley-Gordon | Mrs. Irvin Abell | 11.25 | 11.25 |
| Swiss Cleaners | Mrs. Irvin Abell | 11.25 | .... |
| Strassel-Gans Paint Co. | Mrs. Irvin Abell | 11.25 | .... |
| Times-Journal Publishing Co. | | 35.00 | 26.25 |
| Tafel, Theo. | Mrs. G. A. Hendon | 35.00 | 8.75 |
| Taylor Trunk Co. | Mrs. Irvin Abell | 10.00 | 6.66 |
| Wickland Inn | Mrs. A. T. McCormack | 6.13 | 6.13 |
| Wilderness Road Book Shop | Mrs. G. A. Hendon | 14.00 | 14.00 |
| Walker, Wm. Co. | Mrs. Irvin Abell | 11.25 | .... |
| Wolf's Caterers | Mrs. Irvin Abell | 6.50 | 6.50 |
| Weissinger-Gaulbert Real Estate Co. | Mrs. Irvin Abell | 11.25 | 11.25 |
| Young, C. W., Groceries | Mrs. Irvin Abell | 11.25 | 11.25 |
| | Totals ........................ | $929.48 | $615.97 |
| *Bush-Krebs, Engravers, payable in service, Mrs. A. T. McCormack......... | | 35.00 | 11.92 |
| | Grand Totals ...................... | $964.48 | $627 89 |

Total Amount of advertising contracts for 1933 .................................................. $964.48
Total amount 1933 advertising, paid for up to July 20, 1933 .................................... 627.89

Accounts receivable for 1933 ................................................................ $336 59

## Balance due and paid on 1932 accounts from August 26, 1932 to July 20, 1933

1932

| Firm | Agent | Due on Contract | Paid |
|---|---|---|---|
| Bowling Green Business University | Mrs. A. T. McCormack | $15.00 | $15 00 |
| Buschemeyer Pharmacy | Mrs. Irvin Abell | 20.00 | 20.00 |
| Brown Theatre | Mrs. Irvin Abell | 20.00 | 20 00 |
| Frankel Drug Co. | Mrs. Irvin Abell | 11.25 | 11.25 |
| Heymann, Dr. G. H. | Mrs. A. T. McCormack | 10.00 | 10.00 |
| Haupt, Fred, Florist | Mrs. A. T. McCormack | 10.00 | 10.00 |
| Isler, Louis | Miss Nancy Aud | 11.25 | 5.00 |
| Kentucky Book Mfg. Co. | Mrs. A. T. McCormack | 11.25 | .... |
| Kentucky Hotel | Mrs. G. A. Hendon | 60.00 | 60.00 |
| Muldoon Monument Co. | Mrs. Irvin Abell | 20.00 | 20.00 |
| Means, Dr. G. H. | Mrs. A. T. McCormack | 5.00 | 5.00 |
| Otto Pharmaoy | Mrs. O. P. Miller | 6.50 | .... |
| Packard Louisville Motor Co. | Mrs. Irvin Abell | 35.00 | 35.00 |
| Richards Mr. John H. | Miss Nancy Aud | 6.50 | 6.50 |
| Scottow Studio | Mrs. W. Gossett | 11.25 | 11.25 |
| Stults Motor Co. | Mrs. O. P. Miller | 60.00 | .... |
| Swiss Cleaners | Mrs. Irvin Abell | 11.25 | 11.25 |
| Vaughan, R. E. | Mrs. Irvin Abell | 10.00 | 10.00 |
| Balance on 1932 accounts paid in 1933 ........................... | | $334.25 | $250.25 |
| Balance due on 1932 account in 1933 as per audit ...................................<br>(See October 1932 Quarterly page 18) | | | 84.00 |
| | | | $334.25 |

## Receipts From August 26, 1932 to July 20, 1933

1932 advertising contracts.................. $250.25
1933 advertising contracts .................. 615.97

$866.22

## EXHIBIT "E-4"

Accounts receivable for 1932 ........................................................ $ 84.00
Accounts receivable for 1933 ........................................................ 336.59

Total accounts receivable ............................................................ $420.59

### ACCOUNTS PAYABLE

Times-Journal Publishing Company, Bowling Green ........................................ $100.00

# BUY CHRISTMAS SEALS

## Promote The Christmas Seal Sale In Your County

Auxiliary members are more interested in the Christmas Seal Sale than ever before because they have been studying the tuberculosis situation and know more about the needs of Kentucky citizens for protection against this insidious foe of young and old, rich and poor alike. Fortunately, tuberculosis can be prevented. The encouraging fact that tuberculosis can be prevented and, fortunately too, tuberculosis can be arrested if only it is early recognized and effectively combatted, spurs intelligent people to work for the elimination of this mutual enemy.

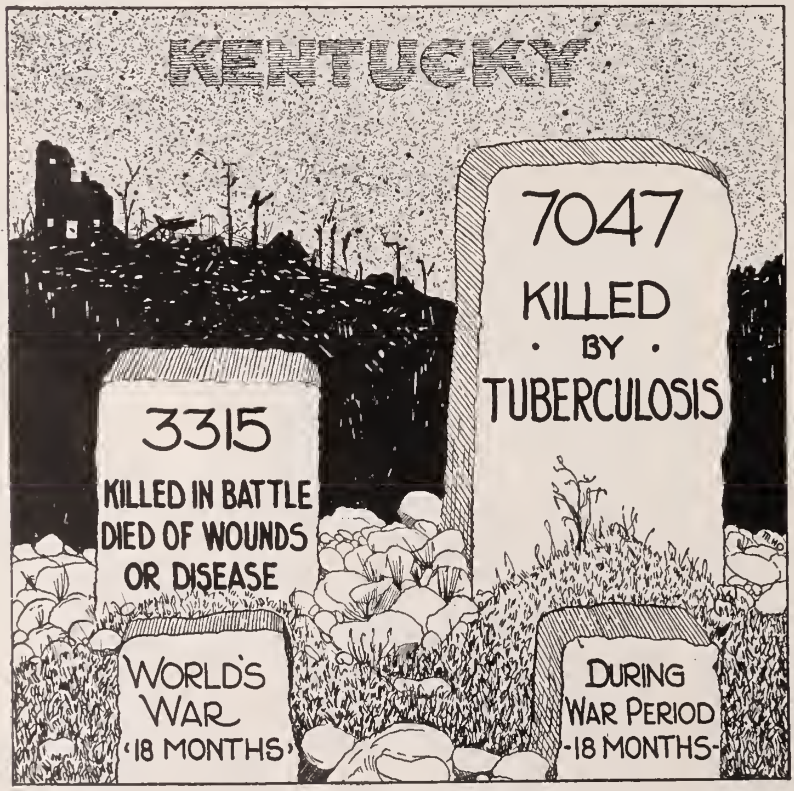
One of the most effective means of ridding our State of this destructive force, is to promote the sale of Christmas Seals for these funds, raised bit by bit—a penny a seal, are used for the support of the Kentucky Tuberculosis Association. These funds constitute its sole support, in fact, except for a few voluntary donations. This organization, founded in 1911 by Mrs. Desha Breckinridge, Lexington, valiantly leads the fight against tuberculosis, in Kentucky, with increasingly good results.

Mrs. L. E. Smith, 439 Fairlawn Road, Louisville, our State Chairman, is anticipating an active Auxiliary Seal Sale Campaign, led by the County Chairman in each County Auxiliary. If each Auxiliary member will lend her aid, under the direction of her County Chairman, who, of course, co-operates with all other Seal Sale activities in her County, our interests in this humanitarian effort can be made more evident. If you have no County Auxiliary Chairman, Mrs. Smith will be glad to hear from you directly and register your interest in our Auxiliary records as you join in this project.

## TUBERCULOSIS and WAR

**These figures embrace all Kentuckians enlisted in the Army, Navy, Marine Corps and all affiliated services who lost their lives from any and all causes in the World War.**

**We all hate War. The thought of it makes us shudder. Yet we are in the midst of a War more destructive in human life and many times more costly in human suffering and economic waste than was the greatest War in history.**



Courtesy of the Kentucky Tuberculosis Association

APRIL 6, 1917—NOVEMBER 11, 1918

**In 18 months the War took from us 3,315 men and we waged a bitter fight against our enemies during all that period. During that same period Tuberculosis took from Kentucky 7,047 citizens and little was said about the horrors of Tuberculosis.**

**Our soldiers died fighting and were laid to rest with honors, leaving behind them proud loved ones and happy memories. Our Tuberculosis victims had no chance to fight their enemies. They filled obscure graves and left behind them a trail of broken homes, orphan children, shattered hopes, bitter memories and infected loved ones.**

**Fight Tuberculosis—
It Fights You**

# DIRECTORY OF COUNTY MEDICAL AUXILIARY ORGANIZATIONS

## BALLARD-CARLISLE COUNTIES

Organized at School Building, Cunningham, September 5, 1933, by Mrs. E. B. Houston. Nine members joined.

### OFFICERS

President—Mrs. E. E. Smith, Barlow
Secretary-Treasurer—Miss Beatrice Harper, Lovelaceville

(Names of members not received in time for publication in this issue, but hope to have them all for January issue. Editor's Note.)

## CALLOWAY COUNTY

Organized May 7, 1929 at Murray. Irregular meetings. Annual Meeting, October, 1933. Fiscal Year, January 1 to December 31.

### ADVISORY COUNCIL

Ben B. Keys, M. D., Murray J. A. Outland, M. D., Murray
C. H. Jones, M. D., Lynn Grove

### OFFICERS 1932-1933

President—Mrs. Edward Brent Houston, Murray
Secretary-Treasurer—Mrs. Cody Harrison Jones, Lynn Grove
Historian—Mrs. J. H. Coleman, Murray

### COMMITTEE CHAIRMEN

Hygeia—Mrs. James Alfred Outland, Murray
Jane Todd Crawford Memorial—Mrs. Solon Higgins, Murray

### ACTIVE MEMBERS

Graves, Mrs. Wildy Harding, Murray
Grubbs, Mrs. William Francis, Hazel
Higgins, Mrs. Solon, Murray
Houston, Mrs. Edward Brent, Murray
Jones, Mrs. Cody Harrison, Lynn Grove
Keys, Mrs. Ben Butler, Murray
Outland, Mrs. James Alfred, Murray
Stark, Mrs. Joseph Victor, Kirksey

### NEW MEMBERS

Atkins, N. M., Murray
Blalock, Mrs. E. R., New Concord
Mason, Mrs. Robert M. Murray

## CAMPBELL-KENTON COUNTIES

Organized January 31, 1930. Regular meetings, first Thursday of each month. Annual Meeting, March 2, 1933. Fiscal Year February 1 to January 31.

### ADVISORY COUNCIL

John E. Dawson, M. D., Newport C. A. Menefee, M. D., Covington William Miner, M. D., Fort Mitchell

### OFFICERS 1933-1934

President—Mrs. Nelson Asbury Jett, 108 East Southern Avenue, Covington
1st Vice President—Mrs. Stuart Goslin Biltz, 601 Monroe Street, Newport
2nd Vice President—Mrs. Charles Atwood Menefee, 302 Earle Avenue, Covington
Secretary—Mrs. Luther Bach, 325 Taylor Avenue, Bellevue
Treasurer—Mrs. Chester Atherton Morris, 316 West 34th Street, Covington
Parliamentarian—Mrs. Barlett Kniffen Menefee, 2120 Glenway, Covington

### COMMITTEE CHAIRMEN

Historical Collection—Mrs. Charles Atwood Menefee, 302 Earle Avenue, Covington
Hygeia—Mrs. John Hadley Caldwell, Eignth and Walnut Streets, Newport
Jane Todd Crawford Memorial—Mrs. Clayton Whittemore Shaw, Alexandria
Membership—Mrs. Edgar William Northcutt, 104 East 25th Street, Covington
Mrs. John Todd, Sixth and Park Avenue, Newport
Program—Mrs. Stuart Goslin Biltz, 601 Monroe Street, Newport
Publicity—Mrs. William Richard Miner, Arcadia Drive, Fort Mitchell
Radio—In the hands of Advisory Council
Social—Miss Pauline Catherine Haley, 304 Doctor's Building, Covington
Tuberculosis—Mrs. Henry Clay White, 3826 Decoursey Avenue, Covington

### ACTIVE MEMBERS

Bach, Mrs. Luther, 325 Taylor Avenue, Bellevue
Blades, Mrs. John M., Butler
Bell, Mrs. Francis Eulon, 225 Elm Street, Lndlow
Biltz, Mrs. Stuart Goslin, 601 Monroe Street, Newport
Bonar, Miss Veva, 251 Linden Avenne, Southgate
Caldwell, Mrs. James Asher, 131 Electric Avenue, Sonthgate
Caldwell, Mrs. John Hadley, Eighth and Walnut Streets, Newport
Jett, Mrs. Nelson Asbury, 108 East Southern Avenue, Covington
Jolson, Mrs. Meyer Stanley, 535 Scott Street, Covington
Justice, Mrs. Charles Wheeler, 440 Elm Street, Ludlow
Menefee, Mrs. Bartlett Kniffen, 2120 Glenway, Covington
Menefee, Mrs. Charles Atwood, 302 Earle Avenue, Covington
Metcalfe, Mrs. Annabel, Independence
Miner, Mrs. William Richard, Arcadia Drive, Fort Mitchell, Covington
Morris, Mrs. Chester Atherton, 316 West 34th St., Covington
Northcutt, Mrs. Edgar William, 104 East 25th St., Covington
Northcutt, Mrs. Jospeh Donephin, Florence
Rolf, Mrs. John Joseph, 322 West 17th St., Covington
Schaber, Mrs. Irene, 1001 Olhatin Ave., Dayton
Shaw, Mrs. Clayton Whittemore, Alexandria
Todd, Mrs. John, Sixth and Park Avenue, Newport
White, Mrs. Henry Clay, 3826 Decoursey Ave., Covington
Wilson, Mrs. Herbert Fleming, 1000 Greenup St., Covington

### ASSOCIATE MEMBERS

Acree, Miss Lena, 2120 Glenway, Covington
Haley, Miss Pauline Catherine, 302 Doctor's Building, Covington

## GRAVES COUNTY

Re-organized August 20, 1931 at Mayfield. Irregular meetings. Annual Meeting September 30, 1933. Fiscal year, September 1 to August 31.

### ADVISORY COUNCIL

H. H. Hunt, M. D., Mayfield W. E. Merritt, M. D., Fancy Farm H. V. Usher, M. D., Sedalia

### OFFICERS 1932-1933

President—Mrs. John Ray Pryor, Mayfield
Vice President—Mrs. Herbert Hobson Hunt, Mayfield
Secretary-Treasurer—Mrs. Harland Vernon Usher, Sedalia

### COMMITTEE CHAIRMEN

Hygeia—Mrs. Mosa West Hurt, Mayfield
Jane Todd Crawford Memorial—Mrs. Herbert Hobson Hunt, Mayfield

### ACTIVE MEMBERS

Dismukes, Mrs. John Lynch, Mayfield
Fuller, Mrs. George T. Mayfield
Hargrove, Mrs. Wilbur S., Hickory Grove
Hunt, Mrs. Herbert Hobson, Mayfield
Hurt, Mrs. Mosa West, Mayfield
Merritt, Mrs. Wilbur Ernest, Fancy Farm
Mullins, Mrs. Stanley, Wingo
Pryor, Mrs. John Ray, Mayfield.
Puryear, Mrs. G., Mayfield
Shelton, Mrs. Will J. Mayfield
Usher, Mrs. Harland Vernon, Sedalia
Walter, Mrs. Earl Charles, Mayfield

### NEW MEMBERS

Colley, Mrs. Lube, Farmington
Colley, Miss Ruth, Farmington
Colley, Miss Sunshine, Farmington
Hunt, Miss Jincy, Mayfield
Shelton, Mrs. John H., Mayfield

## JEFFERSON COUNTY

Organized September 18, 1926 at Louisville. Regular meetings: Business luncheon meetings held quarterly, first Monday of March, June, September. December. Study Class meets at 11:30 A. M., first Monday each month from October through April. Sewing Unit meets at 10:00 A. M., second Tuesday of each month in all day session. Election of Officers, at March quarterly meeting with Installation at June quarterly meeting, which is the Annual Meeting, when Annual Reports are made. Fiscal Year, April 1 to March 31.

### ADVISORY COUNCIL

Irvin Abell, M. D., Louisville Guy Aud, M. D., Louisville
Charles W. Hibbitt, M. D., Louisville

### OFFICERS 1933-1934

(All live in Louisville)

President—Mrs. James Duffy Hancock, 80 Valley Road
First Vice President—Mrs. Lucien Lyne Smith, 208 Pleasantview
Second Vice President—Mrs. J. Hunter Peak, 2091 Sherwood Ave.
Third Vice President—Mrs. Oliver Holt Kellsall, 4704 Southern Parkway
Fourth Vice President—Mrs. Mehron Haroutyoun Mathewsian, 4026 South Third Street
Secretary—Mrs. William Kenneth Kannard, 4303 West Market Street
Treasurer—Mrs. Curt Herbert Krieger, 2000 Grasmere Drive
Parliamentarian—Mrs. William H. Jenkins, 1626 Cherokee Road

### ADVISORY COMMITTEE

Mrs. Oscar Oswald Miller, Mrs. Wm. Edgar Fallis, Mrs. Stephen Clifford McCoy, Mrs. George Clinton Leachmaun, Mrs. James S. Lutz, Mrs. John King Freeman, Mrs. Philip Earl Blackerby.

### COMMITTEE CHAIRMEN

Flower—Mrs. Joseph W. Fitzpatrick, 2327 Bonneycastle
Golf—Mrs. Lucien Lyne Smith, 208 Pleasantview
Historical Collection—Mrs. J. Paul Keith, 2206 Napoleon Boulevard
Hospital—Mrs. Stephen Clifford McCoy, Preston Street Road
Hygeia—Mrs. Henry Christian Hermann, 4011 West Broadway
Jane Todd Crawford Memorial—Mrs. George Albert Hendon, 615 Brown Building
Luncheon—Mrs. Ernest H. Koch, 3800 West Broadway
Membership—Mrs. Gustave Grauman Altman, 2001 Lauderdale Road
Mayor's Committee—Mrs. Calvin Garnett Arnold, 2000 South Third Street
Music—Mrs. Edward Combs Redmon, 1381 South First Street
Publicity—Miss Grace Stroud, 424 East Lee Street
Scrap Book—Mrs. Charles Hudson Moore, 782 Eastern Parkway
Sewing Unit—Mrs. F. Parks Ogden, 4454 South Sixth Street.
Study Class—Mrs. James D. Gibbs, Commodore Apartments
Telephone—Mrs. John Lewis Jones, 1911 Roanoke Avenue
Tuberculosis—Mrs. Richard Taylor Hudson, 322 Stiltz Avenue

### HONORARY MEMBERS

Miss Louise Morel, 2051 Sherwood Avenue
Granville Scott Hanes, M. D., Brown Hotel

### ACTIVE MEMBERS

Abell, Mrs. Irvin, 1433 South Third Street
Adams, Mrs. Roscoe Conklin, 2044 Alta Drive
Altman, Mrs. Gustave Grauman, 2001 Lauderdale Road
Arnold, Mrs. Calvin Garnett. 2000 South Third Street
Aud, Mrs. C. Z., 1648 Edenside Avenue
Aud, Miss Nancy, 1648 Edenside Avenue
Baker, Mrs. Melvin Clinton, 208 South Galt Avenue
Baker, Mrs. Wm. T., 317 Central Avenue
Barbour, Mrs. Philip Foster, 1304 South Sixth Street
Barnett, Mrs. Arthur Morrell, 4511 Southern Parkway
Bates, Mrs. David Arthur, Okolona, Ky.
Bell, Mrs. Joseph Clark, R. F. D. No. 1—Box 50
Blackerby, Mrs. Philip Earl, 4617 South Sixth Street
Blake, Mrs. Blanche, 2200 Alta Avenue
Bohannon, Mrs. Frank Chas., 308 Shawnee Terrace
Bohannon, Mrs. Jas. F., 4720 Southern Parkway
Borgman, Mrs. Deddo H. W., 1832 West Main Street
Bumgardner, Mrs. Jacob Samuel, 2000 Spring Drive
Buskirk, Mrs. Joseph Randolf, 260 Pennsylvania Avenue
Buttorff, Mrs. Gordon Stephen, 2918 Frankfort Avenue
Carter, Mrs. Roy Lewis, 2014 Cherokee Parkway
Carter, Mrs. Wiblo Stewart, 2053 Sherwood Avenue
Casper, Mrs. Joseph Francis, 2332 West Kentucky Street
Clem, Mrs. John Grisby, 1435 Willow Avenue
Cohen, Mrs. David, 2023 Eastern Parkway
Connolly, Mrs. John Joseph, 2909 South Fourth Avenue
Coon, Mrs. George S., 1623 Everett Avenue
Crane, Mrs. James Francis, 2013 Lauderdale Road
Crice, Mrs. Thomas J., 2203 Lauderdale Road
Davidson, Mrs. Harry Adolf, 1601 Windsor Place.
Dorsey, Mrs. Thomas Manning, 200 West Chestnut Street
Dravo, Mrs. Emory Low, 1405 Cross Road
Dugan, Mrs. F. Clarke. 420 West Breckenridge Street
Dugan, Mrs. William Clark, Finchville, Ky., R. F. D. No. 1
Durrett, Mrs. L. P., 407 Harrison Ave., Jeffersonville, Ind.
Dyer, Mrs. Garland Lambuth, Buechel, Kentucky
Eggers, Mrs. Hiram Simm, 2516 Glenmary Avenue
Emrich, Mrs. Wm. H., 842 South Second Street
English, Mrs. Carroll, Chapman, 1712 South Third Street
Ernstberger, Mrs. W. H., 1041 Cherokee Road
Evans, Mrs. Raymond Myers, Cumberland Apartments
Fallis, Mrs. Wm. Edgar, 2046 Sherwood Avenue
Fenner, Mrs., 309 North Western Parkway
Ferguson, Mrs. John Preston, 4242 River Park Drive
Fischer. Mrs. Edward Harris, 1883 Princeton Drive
Fitch, Mrs. Josiah W., 1800 South Second Street
Fitzpatrick, Mrs. Joseph W., 2327 Bonnycastle Avenue
Fitzpatrick, Miss Viola, 2327 Bonnycastle Avenue
Fort, Mrs. Frank T., 1426 South Third Street
Freeman, Mrs. John King, 2104 West Broadway
Fugate, Mrs. Isaac Tyler, 2208 Alta Avenue
Gardner, Mrs. Wm. Emmet, 1405 Rosewood Avenue
Gaupin, Mrs. Chas. Edward, 689 South Western Parkway
Gibbs, Mrs. James D., Commodore Apartments
Goodman, Mrs. Arthur Ouchteron, 119 West Lee Street
Guntermann, Mrs. Peter, 674 South Fortieth
Hall, Mrs. DeLon Perrin, 1481 South 18th Street
Hall, Mrs. Gaylord Crawford, Indian Hills
Hancock, Mrs. James Duffy, 80 Valley Road
Haskell, Mrs. Abraham Irving, 2204 Lauderdale Road
Heflin, Mrs. Ernest Lee, 1246 Cherokee Road
Helms, Mrs. James E., 2015 West Broadway
Henderson, Mrs. Elmer Lee, 87 Valley Road
Hendon, Mrs. George Albert, 615 Brown Building
Herrman, Mrs. Henry Christian, 4011 West Broadway
Herzer, Mrs. Henry Arch, 2105 Rutherford Avenue
Hill, Mrs. David Lutha, 157 Puritan Apartments
Hoddy, Mrs. E. J., 2210 Alta Avenue
Hoffman, Mrs. Claude Graham, 2050 Eastern Parkway
Holbrook, Mrs. Raymond New, 901 Greenleaf Road
Horine, Mrs. Emmet Field, 1509 Rosewood Avenue
Houck, Mrs. I. T., 4148 Greenwood Avenue
Hudson, Mrs. Richard Taylor, 322 Stiltz Avenue
Hulskamp, Miss Clara C., 546 West St. Catherine Street
Hume, Mrs. Walter Irvine, 2218 Village Drive
Jefferson, Mrs. Charles William, 2424 Longest Avenue
Jenkins, Mrs. Wm. H., 1624 Cherokee Road
Jones, Mrs. John Lewis, 1911 Roanoke Avenue
Kannard, Mrs. William Kenneth, 4303 West Market Street
Keaney, Mrs. John M. F., 1600 Eastern Parkway
Keith, Mrs. David Yandell, 40 Hill Road
Keith, Mrs. John Paul, 2206 Napoleon Boulevard
Kelly, Mrs. Clinton Wayne, Wessinger-Gaulbert Apartments
Kelsall, Mrs. Oliver Holt, 4704 Southern Parkway
Kessler, Mrs. P. Louis, 984 Goss Avenue
Koch, Mrs. Ernest H., 3800 West Broadway
Kremer, Mrs. Eugene Heeb, 2536 Broadmeade Avenue
Krieger, Mrs. Curt Herbert, 2000 Grasmere Drive
Krupp. Mrs. Abraham William, 1731 West Chestnut Street
Langolf, Mrs. Louise, 643 East Oak Street
Lawson, Mrs. George McLean, 1207 Audubon Parkway.
Leachman, Mrs. George Clinton, 1820 Casselberry Road
Leavell, Mrs. Hugh Nelson, 1479 South Fourth Street
Leggett, Mrs. Albert E., 2112 Eastern Parkway
Leigh, Mrs. Armistead Macon, 2416 Frankfort Avenue
Lewis, Mrs. W. G., 305 Whitney
Lucas, Mrs. Chas. George, Owens Hill Apartments
Lutz, Mrs. James S., 4349 Park Boulevard
Lukins, Mrs. Joshua Bell, 1280 Eastern Parkway
Lynch, Mrs. Thomas Ignatius,, 2236 Osage Avenue
McConnell, Mrs. Wm. Thomas, 2739 Virginia Avenue
McCormack, Mrs. Arthur Thomas, Brown Hotel
McCoy, Mrs. Stephen Clifford, Preston Street Road
McKeithan, Mrs. Archibald Murdoch, 1340 S. Third Street
McKenney, Mrs. Elbert B., 4501 Southern Parkway
McNally, Mrs. Ida L., 269 Pennsylvania Avenue
McNeill, Mrs. Clyde, 1126 Audobon Park
Martin, Mrs. Wm. J., Baringer Manor Apartments
Mathewsian, Mrs. Melvion Haroutyoun, 4026 S. Third St.
Meyers, Mrs. Sidney J., 1910 South Third Street
Miller, Mrs. Harold Faulkner, 4458 Park Boulevard
Miller, Mrs. Oliver Patterson, 1431 Tyler Park Drive
Miller, Miss Mary E., 1431 Tyler Park Drive
Miller, Mrs. Oscar Oswald, 2321 Alta Avenue
Moore, Mrs. Burt A., 181 North 43rd Street
Moore, Mrs. Chas. Hudson, 782 Eastern Parkway
Moore, Mrs. John Walker, Blankenbaker Lane
Moren, Mrs. John James, 1416 Willow Avenue
Morrison, Mrs. John Rowan, 1419 St. James Court
Neblett, Mrs. John Alexander, 2208 Dundee Road
Neblett, Mrs. Lamar William, 2406 Glenmary Avenue
Nicholson, Mrs. William Woodward, 1708 Harvard Drive
Noland, Mrs. Hulbert Viars, 1801 Spring Drive
Ogden, Mrs. F. Parks, 4454 South Sixth Street
Overstreet, Mrs. Samuel Alvin, 1223 Bardstown Road
Owen, Mrs. Wm. Barnett, 1257 Cherokee Road
Palmer, Mrs. Lee, 517 South Western Parkway
Parker, Mrs. Joseph Skees, 3716 West Broadway
Peak, Mrs. J. Hunter, 2091 Sherwood Avenue
Pfingst, Mrs. Adolph O., 1009 Cherokee Road
Phillips, Miss Nonnie, 4022 West Broadway
Price, Mrs. John Williamson, Jr., Upper River Road, R. F. D. No. 1, Box 450
Pritchett, Mrs. James Henry, 4529 Southern Parkway
*Rawls, Mrs. Vance Quiltman, 3507 West Broadway
Ray, Mrs. George Homer, 116 Mayfair
Ray, Mrs. Joseph Carr, 313 Fairlawn
Redman, Mrs. Edward Combs, 1381 South First Street
Reeser, Mrs. Otter Robinson, 2303 Village Drive
Ritter, Mrs. Frank, 1025 Cardinal Drive
Rogers, Mrs. James Boyles, 2157 Eastview Avenue
Rogers, Mrs. John Clayton, 1479 South Fourth
Roser, Mrs. Charles, 125 Northwestern Parkway
Ryans, Mrs. Lewis, 513 Park Avenue
Sams, Mrs. James Woodville, Crestwood Ky.
Sanders, Mrs. Richard Douglas, 1459 Cypress Avenue
Sandidge, Mrs. Prescott, 1334 Cherokee Road
Shacklette, Mrs. J. R. Jeffersontown, Kentucky
Simon, Mrs. Frank A., Ormsby Village
Smith, Mrs. Lucius Ernest, 439 Fairlawn Road
Smith, Mrs. Lucien Lyne, 208 Pleasantview
Solomon, Mrs. Leon L., 2327 Carolina Avenue
Sonne, Mrs. Irvin Hamilton, 2739 Bardstown Road
Speidel, Mrs. Edward, 2014 Cherokee Parkway
Stokes, Mrs. Edgar William, 923 Cherokee Road
Stroud, Miss Grace, 424 East Lee Street
Sudbury, Mrs. Robert C., 974 South Third Street
Sullivan, Miss Mayme, 532 West Main Street
Trabue, Mrs. Ephraim McDowell, 2638 Whittier Avenue
Tracy, Mrs. Edward Joseph, 444 East Oak Street
Tuggle, Mrs. Allen Davis, 2017 Cherokee Parkway
Tuley, Mrs. Henry Enos, 146 Crescent Avenue
Turner, Mrs. Paul Akers, Hazelwood Sanatorium
Tye, Mrs. Hiram H., 532 West Main Street
Urton, Mrs. Frayvol Wesley, Fern Creek
Venable. Mrs. Harry W., 2108 Strathmoor Boulevard
Victor, Mrs. Karl Norvin, 1414 Eastern Parkway
White, Mrs. Wm. Clayborne, 408 West Ormsby Avenue
Winter, Mrs. James Emil, 125 Wiltshire Avenue

Wilhoit, Mrs. Fred L., 331 East Gray Street
Wood, Mrs. C. F., 1453 South Third Street
Wynn, Mrs. Joseph J., 32 Eastover Street
Young, Mrs. Wm. J., 1124 Cherokee Road
Zimmerman, Mrs. Benjamin Frank, 2322 Glenmary Avenue
Zoll, Mrs. Carl Adolf, 2013 Barringer Avenue
*Deceased. (July 19, 1933)

## MARION COUNTY

Organized October 19, 1929 at Lebanon. Irregular meetings. Annual Meeting, November 10, 1932. Fiscal Year.

### OFFICERS 1932-1933

President—Mrs. Thomas Irvine Campbell, Lebanon
Secretary—Mrs. Harold Robinson Wilbur, Lebanon
Treasurer—Mrs. Oscar Marion Crenshaw, Lebanon

### COMMITTEE CHAIRMAN

Jane Todd Crawford Memorial—Mrs. Oscar Marion Crenshaw, Lebanon

### HONORARY MEMBER

Mrs. L. D. Knott, Lebanon

### ACTIVE MEMBERS

Baute, Mrs. Bernard Joseph, Lebanon
Boldrick, Mrs. John T., Lebanon
Campbell, Mrs. Thomas Irvine, Lebanon
*Cleaver, Mrs. Thomas F., Lebanon
Crenshaw, Mrs. Oscar Marion, Lebanon
Gregory, Mrs. S. F., Bradfordsville
Thornton, Mrs. George C., Lebanon
Wilbur, Mrs. Harold Robinson, Lebanon

### ASSOCIATE MEMBER

McElroy, Mrs. R. Y., Lebanon

*Mrs. Thomas Cleaver, President, resigned in March, 1933, due to the serious illness of her husband. The First Vice President, Mrs. Thomas Irvine Campbell, was next in order for the Presidency.

## MARSHALL COUNTY

Organized September 7, 1926 at Benton. Irregular meetings. Annual Meeting, March, 1933. Fiscal Year, September 1 to August 31.

### ADVISORY COUNCIL

L. L. Washburn, M. D., Benton
W. T. Little, M. D. Calvert City
V. A. Stilley, M. D., Benton

### OFFICERS 1932-1933

President—Mrs. Lawrence Lee Washburn, Benton
First Vice President—Mrs. Samuel Lafayette Henson, Benton
Second Vice President—Mrs. O. A. Eddleman, R. R. 6, Benton
Secretary-Treasurer—Mrs. William Thomas Little, Calvert City
Historian—Mrs. Van A. Stilley, Benton

### COMMITTEE CHAIRMEN

Hygeia—Mrs. Van Albert Stilley, Benton
Jane Todd Crawford Memorial—Mrs. William Thomas Little, Calvert City

### ACTIVE MEMBERS

Eddleman, Mrs. O. A., R. R. 6, Benton
Henson, Mrs. Samuel Lafayette, Benton
Jones, Mrs. Harry, Benton
Little, Mrs. William Thomas, Calvert City
Stilley, Mrs. Van Albert, Benton
Stone, Mrs. W. S., Benton
Washburn, Mrs. Lawrence Lee. Benton

## NELSON COUNTY

Organized October 14, 1931, at Bardstown. Regular meetings, second Tuesday of each month. Annual Meeting, October 28, 1932. Fiscal Year, November 1 to October 31.

### ADVISORY COUNCIL

J. J. Wakefield, M. D., Bloomfield
R. H. Greenwell, M. D., Bardstown
E. D. Mudd, M. D., New Haven

### OFFICERS 1932-1933

President—Mrs. Laura Beckwith Summers, Box 151, Bardstown
Vice President—Mrs. William Ernest Crume, Bardstown
Secretary-Treasurer—Mrs. Joseph Ignatius Greenwell, New Haven

### COMMITTEE CHAIRMEN

Archives—Mrs. Richard Henry Greenwell, Bardstown
Historical Collection—Mrs. Henry Lewis Muir, Bardstown
Hygeia—Mrs. Ernest Carlton Wood, Bloomfield
Jane Todd Crawford Memorial—Mrs. Arthur Dillman Steely, Bardstown
Organization—Mrs. Laura Beckwith Summers, Bardstown
Public Instruction—Mrs. Joseph Ignatius Greenwell, New Haven
Public Relations—Mrs. Edward Denotas Mudd, New Haven
Radio—Mrs. William Ernest Crume, Bardstown
Tuberculosis—Mrs. Laura Beckwith Summers, Bardstown

### ACTIVE MEMBERS

Crume, Mrs. William Ernest, Bardstown
*Flaherty, Mrs. Mary Ann, New Haven and Louisville
Greenwell, Mrs. Joseph Ignatius, New Haven
Greenwell, Mrs. Richard Henry, Bardstown
Kirk, Mrs. George Wallace, Shepherdsville, (Bullitt County)
Mudd, Mrs. Edward Denotas, New Haven
Muir, Mrs. Henry Lewis, Bardstown, (Moved to Louisville)
Steely, Mrs. Arthur Dillman, Bardstown
Summers Mrs. Laura Beckwith, Box 151, Bardstown
Wood, Mrs. Ernest Carlton, Bloomfield
*Deceased. (November 18, 1932)

## PERRY COUNTY

Organized July 11, 1927 at Hazard. Regular meetings, first Friday of each month. Annual Meeting, April 7, 1933. Fiscal Year, May 1 to April 30.

### ADVISORY COUNCIL

R. L. Collins, M. D., Hazard
J. M. Ray, M. D., Hazard
Dana Snyder, M. D., Hazard

### OFFICERS 1933-1934

President—Mrs. Simon Barron Snyder, Hazard
First Vice President—Mrs. Hunter Watkins Gingles, Hardburly
Second Vice President—Mrs. Amerida M. Gross, Hazard
Third Vice President—Mrs. Kelso N. Salyers, Jeff
Secretary-Treasurer—Mrs. Robert Lee Collins, Hazard
Parliamentarian—Mrs. John Corbett Coldiron, Hazard

### COMMITTEE CHAIRMEN

Courtesy—Mrs. John Corbett Coldiron, Hazard
Devotional—Mrs. James Preston Boggs, Hazard
Historian—Mrs. Kelso N. Salyers, Jeff
Hygeia—Mrs. George M. Adams, Hazard
Jane Todd Crawford Memorial—Mrs. William L. Welch, Hazard
Membership—Every Member
Publicity—Mrs. Dishman C. Combs, Hazard
Public Relations—Mrs. Samuel M. Richie, Hazard
Scrap Book Custodian—Mrs. Robert Lee Collins, Hazard
Telephone—Mrs. David Decatur Carr, Hazard
Tuberculosis—Mrs. David Decatur Carr, Hazard

### HONORARY MEMBER

Breckinridge, Mrs. Mary., Hyden and Wendover
(Director, The Frontier Nursing Service)

### ACTIVE MEMBERS

Adams, Mrs. George M., Hazard
Anderson, Mrs. Charles Marion, Napfor
Boggs, Mrs. James Preston, Hazard
Bogardus, Mrs. George, Hyden
Carr, Mrs. David Decatur, Hazard
Coldiron, Mrs. John Corbett, Hazard
Collins, Miss Dorothy, Hazard
Collins, Mrs. Robert Lee, Hazard
Combs, Mrs. Marshall E., Hazard
Duke, Mrs. John W. Hindman
Duke, Miss Lottie, Hindman
Dunfee, Mrs. Harry, Hazard
Fitzpatrick, Mrs. Ben, Hazard
Gingles, Mrs. Hunter Watkins, Hardburly
Gross, Mrs. Amerida M., Hazard
Hagan, Mrs. James Edward, Hazard
Hensley, Mrs. Hiram, Kodak
Hobbs, Mrs. Walter H., Glomawr
Johnston, Mrs. Parker L., Hazard.
Kelly, Mrs. Manford Fulton, Hindman
Ray, Mrs. Joseph Manuel, Allais
Richie, Mrs. Samuel Marcellus, Hazard
Salyers, Mrs. Kelso N., Jeff
Snyder, Mrs. Charles Dana, Hazard
Snyder, Mrs. Simon Barron, Hazard
Stoddard, Mrs. James Kent, Wooten
Welch, Mrs. William L., Hazard

### ASSOCIATE MEMBERS

Combs, Mrs. Dishman C., Hazard
Fouts, Mrs. J. William, Hazard
Goad, Mrs. R. L., Hazard
Peacock, Miss Gladys, Hyden, (Nurse)
Shelton, Mrs. F. F., Hazard
Steele, Mrs. J. C., Hazard
Willeford, Miss Mary B., Hyden. (Nurse)

## STATE-AT-LARGE MEMBERS

Bailey, Mrs. J. N., Paducah
Brock, Mrs. G. S., London
Conlee, Mrs. Rose Caldiron, Hazel Green and Louisville
Coogle, Mrs. C. P., Houston, Texas
Davis, Mrs. A. W., Madisonville
Davis, Mrs. Emma, Frankfort
English, Mrs. J. M., Elizabethtown
Estill, Mrs. A. Julian, Lexington
Goodloe, Mrs. O. M., Jackson
Kidd, Mrs. O. R., Paducah
Kinchloe, Mrs. John E., Hardinsburg
Martin, Mrs. W. M., Harlan
Norfleet, Mrs. Carl, Somerset
Parker, Mrs. J. H., Corbin
Reddick, Mrs. J. T., Paducah
Sandbach, Mrs. J. A., Irvington
Sory, Mrs. James D., Madisonville
Tanner, Mrs. J. Leland. Albany
Thompson, Mrs. G. L., Calhoun
Threlkel, Mrs. C. C., Morgantown
Warren, Mrs. Marion, Science Hill

## BOOK REVIEW

### "Machine Age in the Hills"

**Mrs. James D. Gibbs, Louisville**

This interesting book by Malcolm Ross was motivated by the sight of suffering among the friendless people of the mines.

He gives a very clear idea of the conditions that existed in the Kentucky Mountain coal mines in 1932, quite unlike that of Theodore Dreiser, investigating conditions at the same time, who closed his eyes to everything except the most dire wretchedness his guides could find for him.

Mr. Ross gives us a true and interesting picture of the people, the mines and the operators. He concludes that the mountain people of two or three decades ago, although poor in this world's goods yet free from civilization's irritations and boredom, were happier in their poverty. Blessed with an inborn content, he finds them still deeply religious, prejudiced often, but honest and charming in their refreshing naturalness. Mr. Ross' picture is not unlike that of Dr. Munthe in "San Michele," Dr. Munthe contributing large sums of money to keep the Icelanders in their present state of happy isolation, unspoiled by civilization. N. R. A. is at work in the Kentucky mountains.

The miners' brief silk shirt period of overproduction produced financial ruin for both operators and miners. While the miners spent their hundreds, the operators tossed their thousands to the same breeze. When the crash came the operators were equipped to turn to other means of livelihood, but the miners were helpless.

In a period of less than ten years the clever mechanical devices invented and the use of oil and gasoline in the place of coal, prove that America will never again need such vast quantities of coal; neither will America need one-half the miners to produce all the coal the country can use. This leaves a situation not easily remedied. The miner's home is full of children. Undernourishment takes its greatest toll from the children and from pregnant and nursing mothers.

The diet of mine children is appallingly bad. The babies are weaned quickly and put on the family diet of beans, potatoes, corn bread and sow belly; their bones are brittle. The sunshine saves many of them from having rickets. Their teeth are poor, very little dental work is done for them.

Mr. Ross is not entirely unfamiliar with Kentucky, having served at one time on the staff of the Courier-Journal, and later, spent months with the miners, operators, labor leaders and the Quaker relief workers. From their experience and his own observation he offers one possible way out. He proposes controlled production, complete unionization and the allotment to miners of surface rights in the land so they can devote themselves to tillage and forestry when the mines are not running, and a Federal tax of one penny a ton on coal, one-half to go for research work for the benefit of the industry, and one-half for the miners' welfare. The urgent need is instruction in skilled trades and handicrafts. They need books and a chance for their children to prepare for the modern world into which they must grow up. This cent a ton tax would give them this, not as charity but as a small rightfully earned return from the wealth they helped to create.

Many people will agree with Mr. Ross' viewpoint "that the most unfortunate people in the United States today are those who dig the very stuff on which the Machine Age was founded."

## RADIO WAVES

**Mrs. John L. Jones, Louisville.**
State Radio Chairman

In the June 1933, issue of "**The Quarterly**" mention was made of the Radio Educational program being carried out by the University of Kentucky in the more isolated parts of the State. This Radio Educational group is very desirous of obtaining a good supply of receiving sets to be sent to these listening centers and would appreciate the co-operation of the Auxiliary in securing more sets.

Perhaps you have an old radio which is not being used and would give it to the University, to be placed by them in one of the listening centers; it would then be the means of bringing a wealth of knowledge and hours of pleasure to many who could not otherwise enjoy this rare opportunity being offered by the State University. Or, perhaps you have a friend, or know of someone who has a receiving set that could be repaired and "put to work."

If you have a set to give, or know where one could be obtained, will you kindly write Mrs. John L. Jones, 1911 Roanoke Street, Louisville, State Radio Chairman of the Woman's Auxiliary, and arrangements will be made for having it sent to the University. Your help will be greatly appreciated.

## PROCEEDINGS OF THE ELEVENTH ANNUAL MEETING OF THE WOMAN'S AUXILIARY TO THE KENTUCKY STATE MEDICAL ASSOCIATION, HELD AT MURRAY, KENTUCKY, SEPTEMBER 11-14, 1933

The Eleventh Annual Meeting of the Woman's Auxiliary to the Kentucky State Medical Association opened at Murray State Teachers College, Murray, on Monday, September 11, at 9:00 a. m. with registration in the lobby of the Library.

### Study Class

All women attending the Annual Meeting

were invited to the Study Class held in the Reading Room of the Library at 10:30 a. m. with Mrs. V. A. Stilley, Benton, in the chair. Eighteen were present. Mrs. George A. Hendon, Louisville, gave an interesting book review of Haggard's "Devils, Drugs and Doctors" which developed considerable discussion. Miss Pauline C. Haley, Covington, demonstrated the study of the Medical and Health Laws, using Lesson 8, the lesson on Tuberculosis, in the September, 1931 Bulletin of the State Board of Health. Miss Haley used the question and answer method, having provided each member of the Class with typed copies of the answers, numbered. She asked the questions. This developed discussion and comment in the class. Mrs. F. Clarke Dugan, Louisville, described the Proposed New Federal Food and Drug Law which was introduced in the last Congress by Senator Copeland of New York and is known as Senate Bill 1944, illustrating her talk with photographs of numerous exhibits of false advertising and fraudulent practices. Among other things, Mrs. Dugan said that the old Food and Drug Law of 1906, under which we are now living, had been made to fit the times in which it was inaugurated but she showed very clearly that new developments, new practices now call for a law that fits the present time and its needs, not in our protection from injurious food and drugs alone, but in safe cosmetics and therapeutic appliances, as well. Mrs. Dugan compared the old Food and Drug Law and this proposed new law with methods of transportation, saying that the old law might be likened to the ox cart which did get many of the pioneers across the continent, eventually, while the proposed new law may be compared with a modern automobile for effectiveness.

Mrs. Dugan urged that all members of the Auxiliary write to their Congressmen requesting a copy of S. 1944 and familiarize themselves with this proposed new Food and Drug Law, which affects every American home so intimately, and appeal to their Congressmen and Senators to pass S 1944. A motion carried that the Resolutions Committee be requested to draw up a resolution on this subject and submit it to the Business Session for the consideration of the whole Body, concluding an interesting and profitable program.

### Round Table Conference

An Informal Round Table Conference was held in the Reading Room at the Library from 2:00-3:15 p. m. with Mrs. B. K. Menefee, Covington, presiding in the absence of Mrs. Luther Bach, Bellevue, who was detained. The first subject under discussion, The Report of the Committee on the Cost of Medical Care, was led by Mrs. E. B. Houston, Murray, who called attention to the voluminous bulk of reading matter comprising this report and said that she had not, could not take the time, before this meeting, to do more than glance at a part of it, but, that she found it all interesting as so many noted men and women had contributed serious thought and work to this report which, it is said, cost about $5,000,000.00. The report is published in two parts, known as The Majority Report and The Minority Report.

Mrs. George A. Hendon quoted some articles on the subject from current magazines and a letter was read from Mrs. R. L. Collins, Hazard, stating that the Perry County Medical Society appears to favor the Minority Report. Discussion from the floor brought out the fact that a total of 48 men and women had signed a report after five years of earnest, thoughtful work under the Chairmanship of Dr Ray Lyman Wilbur of California, a Past President of the American Medical Association. Twenty-five of these men are physicians, 15 of the physicians are engaged in private practice, 5 represent institutions and special interests, 3 represent public health instructors, and 1 represents State Health Commissioners and 1 (Dr. Ray Lyman Wilbur) represents the public in the classification of the members. One classification, Social Sciences, was filled with Ph. D. degrees and included no M. D. Seventeen of the physicians signed the report of the committee and 8 signed the minority report. Two dentists presented a second minority report. One member, a statistician, and one member engaged in the social sciences, each presented separate personal statements, so that, of the 48 members studying and making reports, all but 13 approved and signed the Report of the Committee. It was agreed by all those taking part in the discussion that further study is necessary to familiarize themselves with the subject before attempting to express any opinion regarding this controversial subject.

The discussion on Tuberculosis was led by Mrs. W. T. Little, Calvert City, who gave an interesting paper, showing considerable knowledge of the prevention and treatment of this disease. Mrs. H. Clay White, Covington, followed with a description of the work in Kenton County and an outline of promising plans for the future. Free discussion from the floor gave evidence of much interest in this subject. Mrs. B. K. Menefee closed the discussion and announced the Pre-Convention Board Meeting to be held immediately.

## MINUTES OF THE PRE-CONVENTION BOARD MEETING

The annual Pre-Convention Board Meeting of the Woman's Auxiliary to the Kentucky State

Medical Association was held in the Library at the Murray State Teachers College, Murray, on Monday, September 11, 1933, at 3:45 p. m., the President, Mrs. A. T. McCormack, Louisville, presiding. A quorum was present. (16). The invocation was offered by Mrs. V. A. Stilley, Benton. Minutes of the Post Convention Board Meeting of the tenth annual meeting, 1932, were read and approved.

In memory of our late National Auxiliary President, Mrs. Walter Jackson Freeman, a moment of silent prayer was observed. The proposed revisions to the Constitution, Article 9, were read and approved.

The Nominating Committee was elected as follows: Mrs George A. Hendon, Louisviile, chairman; Mrs. V. A. Stilley, Mrs. C. H. Jones, Lynn Grove; Mrs. C. C. Threlkeld, Morgantown; and Mrs. Solon Higgins, Murray. A meeting of the Nominating Committee was called to follow immediately at the end of the Board Meeting.

The Resolutions Committee was appointed by the President with Mrs. C. A. Menefee, Covington, chairman; Mrs. L. L. Washburn, Benton; Mrs. George S. Ray, Louisville.

Brief reports were made by the officers and chairmen. The Financial Report of the Treasurer shows a bank balance in the General Administrative Fund of $90.10 notwithstanding the delinquent payment of dues, caused by the general depression and the change in the Fiscal year.

The Jane Todd Crawford Memorial Fund shows a bank balance, on interest, of $605.82. Graves County reported a donation of $5.00 mailed September 9, making the total fund, $610.82.

Collections and disbursements of **The Quarterly**, supplement to the Kentucky Medical Journal, show all bills paid to September 8, and a bank balance of $25.48 with $312.11 on our books for the support of the October issue.

The chairman of organization reported considerable activity with little evident results because of the general depression. The organization of one unit was reported. The Woman's Auxiliary to the joint Ballard-Carlisle County Medical Society was organized by Mrs. E. B. Houston, Murray, at the school building in Cunningham, September 5, 1933, with Mrs. E. E. Smith, elected president; Miss Beatrice Harper, Lovelaceville, secretary and treasurer.

The report of the Tuberculosis chairman was followed by the reading of a letter from Dr. L. E. Smith, executive secretary of the Kentucky Tuberculosis Association appealing for assistance from the county auxiliaries in the sale of Christmas Seals, offering, as last year, a prize to the county auxiliary making the largest sale. Dr. Smith urges that wherever other organizations are established in this work, the Auxiliary cooperate and work through this organization but keep its own record of achievement, as well, and report to him.

The verbal report on **The Quarterly** made by the editor was followed with urgent request that the county auxiliaries send in their news items early for each issue—before the 25th of February, May, August and November.

A letter requesting approval and cooperation for the N. R. A. from Mrs. Samuel W. Wilson, chairman of the Kentucky State Woman's Committee, was read. Motion carried to submit this to the Resolutions Committee with the endorsement of the Board. Adjourned at 4:45 p. m

(Mrs. W. T.) Virginia Little,
Recording Secretary

### The President's Report to the House of Delegates

The President, Mrs. A. T. McCormack, appeared before the House of Delegates at 8:00 p. m. September 11, and presented her report of the work of the Auxiliary for the past year. The report was graciously accepted by the House.

(See Minutes of the House of Delegates, Kentucky Medical Journal, November, 1933.

## MINUTES OF THE ANNUAL MEETING, SEPTEMBER 12, 1933

### First Session

The general business meeting of the eleventh annual meeting of the Woman's Auxiliary to the Kentucky State Medical Association was called to order in the Library at Murray State Teachers College, at 10:00 a. m., Tuesday, September 12, 1933, by the President, Mrs. A. T. McCormack, Louisville. A quorum was present. Thirty-eight members were seated at the opening of the session. The singing of America, in unison, was led by Mrs. R. M. Mason, Murray. The invocation was offered by the Rev. O. A. Marrs, pastor of the Methodist Episcopal Church, Murray. The addresses of welcome were given by Mrs. E. B. Houston, Murray, for the Calloway County Auxiliary; Mrs. William H. Mason and Dr. John W. Carr for the Murray State Teachers College and Miss Jincy Hunt, Mayfield, for Western Kentucky. The response was made by Mrs. C. A. Menefee, Covington. Roll call showed that six officers, seven committee chairmen, four county Presidents, and eight Delegates were present.

The report of the chairman of the Committee on Arrangements was made by Mrs. E. B Houston, Murray.

The report of chairman of the Committee on Credentials and Registration was made by Mrs.

B. B. Keys, Murray, who reported 64 members and guests had registered.

Upon motion of Mrs. Luther Bach, Bellevue, the reading of the minutes of the Tenth Annual Meeting was suspended as these had been published in the January issue of **The Quarterly.**

Greetings and messages from the Kentucky State Medical Association were brought by the President, Dr. W. M. Martin, retiring President, Dr. Philip F. Barbour, the Secretary, Dr. A. T. McCormack, and chairman of the Advisory Council, Dr. W. E. Gardner, who commended the work of the Auxiliary. They encouraged continuation in efforts for benefitting and bettering Mother Life and Child Life in Kentucky, intensifying and extending our activity in the Study and Prevention of Tuberculosis and warned against dividing our body into too many groups but advised that we keep the Auxiliary an assembly. Approval of **The Quarterly** was voiced by all and Dr. Gardner advised for economic reasons, standardization of the cover in the near future.

The President's report was made by Mrs. A. T. McCormack with the Fourth Vice President, Mrs. J. R. Pryor, Mayfield, in the chair. This report of the administrative office was linked with the report of the editor of **The Quarterly.** Concluding her report, she presented to the organization, through the Chairman of Archives, a bound copy of the first volume of **The Quarterly.**

A rising vote of thanks was enthusiastically given Mrs. McCormack in appreciation of her untiring work. Copy of this and all other reports are herewith appended.

Reports of the following counties were made by the Presidents or delegates: Calloway, Campbell-Kenton, Graves, Jefferson, Marshall, Nelson. The report from Perry County was read by the Secretary. Verbal report from Ballard-Carlisle was given by Miss Beatrice Harper, and from Marion by the President. On motion these reports were received and filed.

It was voted to send a message to Mrs. Ruby Laffoon expressing regret because of her unavoidable absence due to her unexpected duties at the executive mansion during the special session of the Legislature.

A message to the Auxiliary from Mrs. J. T. Reddick, Past President, convalescing in California, was brought by Mrs. V. A. Stilley.

In Memoriam, prepared by Mrs. N. A. Jett, Covington, was given by the President, followed by a moment of reverent silence.

Recess.

(Mrs. W. T.) Virginia Little,
Recording Secretary.

### Informal Luncheon

An informal subscription luncheon was held at Wells Hall, at 12:30 p. m. on Tuesday, September 12, with a delightful musical program provided by local artists under the direction of Mrs. R. M. Mason, Murray.

### The President's Tea

A most enjoyable tea was given by Mrs. Ben B. Keys and Mrs. E. B. Houston at the charming Old English home of Dr. and Mrs. E. B. Houston in honor of the President, Mrs. A. T. McCormack and the President-Elect, Mrs. B. K. Menefee. Delicious refreshments were served in the beautiful garden where a musical program delighted the guests who roamed from flower beds to fish pool and rock garden in happy reunion with old friends and interesting development of new acquaintances.

### Public Addresses

Members of the Auxiliary attended the Public Meeting, held in the spacious auditorium, Tuesday evening, September 12, when Dr. William M. Martin, Harlan, made his presidential address, introduced by Dr. C. W. Hibbitt, Louisville. This was followed by an interesting illustrated lecture on Trachoma Among the White People of the United States, given by Dr. Robert Sory, Richmond. Then followed, an instructive demonstration, also illustrated with moving pictures and slides, of Collapse Therapy In Tuberculosis, presented by Dr. Paul A. Turner, Hazelwood Sanitarium, Louisville.

## MINUTES OF THE ANNUAL MEETING
## SECOND SESSION

The second session of the General Business Meeting of the Eleventh Annual Meeting of the Woman's Auxiliary to the Kentucky State Medical Association was held in the Library at the Murray State Teachers College, Murray, at 9 A. M. Wednesday, September 13, 1933. The President, Mrs. A. T. McCormack, presided, a quorum was present. The Collect used by Nelson County Auxiliary in opening its sessions, was given by Mrs. J. I. Greenwell, New Haven.

The minutes of the First Session were read by the Secretary and approved.

Mrs. Willard Bartlett, St. Louis, Missouri, a Director of the American Medical Auxiliary, arrived, was introduced to the body and seated on the rostrum.

Reports of the State Officers and Committee Chairmen were made, accepted and filed as follows: President-Elect and Chairman of Organization reporting for all the Vice-Presidents. Mrs. B. K. Menefee, Correspondence Report of the President and Corresponding Secretary, made by the President. The report of the Treasurer, Mrs. Curt H. Krieger, was read and adopted with a rising vote of thanks.

Report of the Finance Committee, Mrs. R. L. Collins, Chairman, was presented by the President. This was followed by a discussion and the adoption of a motion that the Auxiliary install the Budget System for the administration of Finances.

Reports were received and filed from the following Committee Chairmen: Archives: Mrs. C. A. Menefee, Covington; Public Instruction, Mrs. E. B. Houston, Murray; Radio, Mrs. J. L. Jones, Louisville; Jane Todd Crawford Memorial, Mrs. Geo. A. Hendon, Louisville.

The Report of Tuberculosis Chairman, Mrs. James D. Gibbs, was read by the Secretary; accepted and filed.

The Report of the Business Manager of **The Quarterly**, Mrs. Curt H. Krieger, was presented by the President. This was followed by free discussion from the floor, in which the guest from the American Medical Auxiliary, Mrs. Willard Bartlett, joined in approval of **The Quarterly.** Expression of opinion was unanimous that **The Quarterly** is necessary and should be continued. The question of financial support was considered in some detail, members were urged to discuss this subject in their County Auxiliaries and determine as early as possible upon the support each may offer.

The proposed revisions to the Constitution, Article 9, approved by the Executive Board, were presented by the Parliamentarian, Mrs. V. A. Stilley, and adopted.

The Report of the Delegate to the Woman's Auxiliary, American Medical Association 1933 Annual Meeting in Milwaukee, was presented by Mrs. B. K. Menefee. Accepted and filed. The Report of the Delegate to the Woman's Auxiliary, Southern Medical Association 1932 in Birmingham, was presented by Mrs. V. A. Stilley: Accepted and filed.

The Report of the Resolution Committee, Mrs. C. A. Menefee, Chairman, was presented as follows:

## RESOLUTIONS

1. Whereas, The Woman's Auxiliary to the Kentucky State Medical Association, in Annual Session assembled, has enjoyed the use of the entire plant of the Murray State Teachers College, complete and adequate for all needs, and,

Whereas, We have received the kindliest consideration from every one connected with Murray State Teachers College, Now,

Therefore,

Be It Resolved, That we extend our heartfelt thanks to the President, Dr. John W. Carr and to the Regent, Mrs. Wm. H. Mason, who welcomed us personally to Murray and to the College; to the Office Staff who so cheerfully answer all our many questions and keep the machinery running smoothly; to the Manager of the dining room and her assistants who supply us with such delicious food; and to all the various helpers who have been untiring in their efforts to make our stay in the College pleasant.

2. Whereas, These are days of unusual stress and strain for the members of the Kentucky State Medical Association, individually, as well as in this organized body, Now,

Therefore,

Be It Resolved, That we strive by word and deed to show our confidence in their work and leadership and that we show our appreciation of their faith in us by giving even greater loyalty to the causes dear to their hearts and especially to every means that will strengthen the State Board of Health, which is the legal, administrative arm of the organization.

3. Whereas, The present economic depression furnishes excellent conditions for the development and growth of our ancient enemy, Tuberculosis, And,

Whereas, This disease, Tuberculosis, is reported to be increasing in our citizenship because of bad housing insufficient food, etc. among the underprivileged, Now,

Therefore,

Be It Resolved, That we go on record as endorsing the leadership of the Kentucky Tuberculosis Association in the education of the public regarding this disease, its prevention and eradication, and that we get squarely behind this movement to eliminate Tuberculosis by supporting and assisting this Association in every way possible, particularly by selling Christmas Seals. And, further,

Be It Resolved, That we will make an honest effort to aid in securing more free beds for indigent cases of Tuberculosis at our State Sanitorium which is doing excellent work under the most adverse conditions.

4. Whereas, It seems especially fitting that our organization being more closely connected than any other lay group with medical work in all its phases, should take a place of leadership in Child and Maternal Health Work, Now,

Therefore,

Be It Resolved, That we throw the full strength of this organization into the Child Health work being done in the schools under the leadership and the direction of the State Medical Association through Dr. Philip F. Barbour and the State Board of Health and that we assist whenever and wherever possible in the Blue Ribbon Standard Campaign culminating in the May Day, Child Health celebration, and in all other movements looking toward more perfect development in the younger generation.

5. Whereas, The Kentucky State Medical Association is striving to establish a series of Post-Graduate Extension Courses in several districts which will be of great value to our physicians, affording them, as it will, an opportunity frequently for a day of study under leading medical men of the State who are donating their

time and services, Now,

Therefore,

Be It Resolved, That we assist in this good cause, when the meetings are held in our Counties, by providing the noon-day meal and aiding in any other way that may present itself.

6. Whereas, The League of Christian Physicians inaugurates each Annual Meeting of the Kentucky State Medical Association with a union Church service held the preceding Sunday evening at the largest church in the city, Now,

Therefore,

Be It Resolved, That the members of the Woman's Auxiliary aid in stimulating attendance at this service each year.

7. Whereas, **The Quarterly,** our Supplement to the Kentucky Medical Journal, has improved with each edition and our love and pride in it have grown with **The Quarterly,**

Now, therefore,

Be It Resolved, That we reiterate our appreciation of and our pride in the small group of women whose hard work and devotion have made it possible for us to enjoy this splendid publication, And, Further,

Be It Resolved, That we will make an honest effort to give them financial aid in this undertaking.

8. Whereas, The Food and Drug Administration of the United States Department of Agriculture, acting under the instruction of President Roosevelt in his program for The New Deal, has prepared a new Food and Drug Law which has been introduced as Senate Bill 1944 by Senator Copeland of New York in the Congress of the United States, And,

Whereas, This Law, as prepared by the Administration, will protect the consumer from menace to health from misbranded and falsely advertised foods, drugs and cosmetics and will provide such penalties for the violation of the Law as are not now provided, Now, Therefore,

Be It Resolved, That the members of the Woman's Auxiliary to the Kentucky State Medical Association make every effort to further the passage of this bill, S 1944, by urging individual members of Congress to vote for its passage, And, Further,

Be It Resolved, That the Auxiliary urge all members as individuals, and in organizations with other friends, to study and work for the passage of this bill, S 1944.

9. Whereas, The whole country, at the call of the President, is engaged in a war against depression, Now, Therefore,

Be It Resolved, That we endorse the work of the National Recovery Administration and that we use every means at our disposal to assist in this cause and in this way help in lifting the great industrial burden of calamity which has occasioned so much misery.

10. Whereas, The Woman's Auxiliary to the Kentucky State Medical Association has been entertained most happily and comfortably in the beautiful little city of Murray, Now,

Therefore,

Be It Resolved, That we hereby express our sincere thanks to the Hostess Auxiliary, Calloway County, particularly to the President, Mrs. E. B. Houston, who has acted as Chairman of Arrangements and her group of efficient workers, who by their painstaking efforts and careful attention to details, have added so much to the effectiveness of our meeting and to the enjoyment of our sojourn here. Particularly noteworthy, has been the work of the Chairmen of the various Committees; namely: Mrs. Ben Keys, Credentials; Mrs. R. M. Mason, Music; Mrs. C. H. Jones, Reception; Mrs. J. T. Lovett, Publicity; Mrs. W. H. Graves, Flowers; Mrs. T. Sledd, Information and Miss Ruth Sexton, Luncheons. And, Further,

Be It Resolved, That we express our gratitude to the Press of Murray for their courtesy and for their generous publicity.

And, Further, to Mrs. Houston and Mrs. Keys for their delightful Garden Party and Tea at the home of Mrs. Houston; to the Woman's Club of Murray for their gracious hospitality and Tea at the home of Mrs. Wm. H. Mason, and, to all the people of Murray and Calloway County who have treated us with such unfailing courtesy and kindness.

11. Whereas, The administration of the affairs of this organization have been successfully conducted during this last hectic and difficult year, Now, therefore,

Be It Resolved, That we hereby express our appreciation and pride in our efficient corps of State Officers, prominent among whom is our President, Mrs. A. T. McCormack. To each of the State Officers and Committee Chairmen, we express our heartfelt gratitude for their unselfish and devoted work during the year.

(Signed) Mrs. C. A. Menefee, Chairman,
Mrs. L. L. Washburn,
Mrs. George H. Ray.

The Report was adopted unanimously. The final report of the Chairman of Credentials and Registration shows a total attendance of 88—63 members and 25 visitors.

The Report of the Nominating Committee was presented by Mrs. Geo. A. Hendon, Chairman. Nominations from the flood were called for. None were offered. A motion that the nominations be closed, carried. A motion that the Secretary cast the ballott, carried.

The Secretary cast the ballot whereupon the following were declared elected unanimously:

President—Mrs. B. K. Menefee, Covington
President-Elect—Mrs. J. I. Greenwell, New Haven
1st Vice President—Mrs. C. A. Menefee, Covington

2nd Vice President—Mrs. Ben B. Keys, Murray
3rd Vice President—Mrs. H. V. Usher, Sedalia
4th Vice President—Mrs. C. C. Threlkel, Morgantown
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The newly elected officers were called to the platform and introduced by the President. Mrs. B. K. Menefee, the President for the coming year was installed and Mrs. McCormack presented the gavel to Mrs. B. K. Menefee. Following her acceptance speech, Mrs. Menefee announced that Mrs. Luther Bach, Bellevue, has accepted appointment as Corresponding Secretary.

Adjourned sine die at 12:10 o'clock noon.

(Mrs. W. T.) Virginia Little,
Recording Secretary.

### Annual Luncheon

The Annual Luncheon of the Woman's Auxiliary to the Kentucky State Medical Association was held at 12:30 p. m., Wednesday September 13, in Wells Hall. This luncheon was given with the compliments of the Kentucky State Medical Association to its Auxiliary. The honor guest was Mrs. Willard Bartlett, St. Louis, a Director of the Woman's Auxiliary to the American Medical Association. Mrs. A. T. McCormack presided as toastmistress and introduced Mrs. R. M. Mason, who presented several local artists, who entertained with musical numbers and humorous readings. The Acting Hosts were: the President of the Kentucky State Medical Association, Dr. William M. Martin; retiring President, Dr. Philip F. Barbour; Secretary, Dr. A. T. McCormack; members of the Advisory Council, Dr. William E. Gardner and Dr. V. A. Stilley. The outstanding feature of the program was the charming address of the guest of honor, Mrs. Willard Bartlett, whose subject, interestingly developed for an Auxiliary audience, was The First Decade and Present Trends.

Among other things Mrs. Bartlett said:

"You will be interested to hear the names of Kentucky women I have come across in looking over National records. We find Mrs. M. H. Davis, Mayslick, appointed on the National Committee in 1923 and in the report of the convention at Atlantic City in 1925, when the list of States delinquent in dues was read, on finding Kentucky's name among them, a venerable lady, Mrs. J. N. McCormack, Louisville,—widow of Dr. J. N. McCormack, and mother of Dr. A. T. McCormack—arose and said had she known that the State was in arrears she would have seen that the dues were paid, which she promptly did At this meeting, Mrs. Irvin Abell, Louisville, was elected Third Vice-President. She was elected Treasurer at the 1926 meeting in Dallas and re-elected in 1927 at Washington, and, again in 1928 at Minneapolis. At the 1929 meeting in Portland, Mrs. Abell was elected Fourth Vice-President. Mrs. A. T. McCormack, Louisville, succeeded Mrs. W. Wayne Babcock, Philadelphia, in 1928, as Chairman of Organization. She was elected Recording Secretary at the Portland Meeting in 1929 and re-elected at the Detroit Meeting in 1930. At the Philadelphia Meeting in 1933, she was elected a Director and served for two years. By virtue of their office, your Past State Presidents, Mrs. Graham Lawrence, Shelbyville, Mrs. V. A. Stilley, Benton, Mrs. W. M. Martin, Harlan, Mrs. J. T. Reddick, Paducah, Mrs. P. E. Blackerby, Louisville, Mrs. E. B. Houston, Murray, Mrs. George A. Hendon, Louisville, have also been valued members of the National Board."

### Post-Convention Board Meeting

The Annual Post-Convention Board Meeting of the Woman's Auxiliary to the Kentucky State Medical Association was held in the Library at Murray State Teachers College, Murray, Wednesday, September 13, at 2:30 P. M. The President, Mrs. B. K. Menefee, presided. A quorum was present (18). Mrs. Willard Bartlett, St. Louis, a Director of the Woman's Auxiliary to the American Medical Association, and Honor Guest of the Convention, was also present.

Following the Invocation, the list of appointees for Committee Chairmen was presented by the President. These were approved.

It was requested that suggestions for a standardized cover for the Auxiliary Supplement to the Kentucky Medical Journal be sent directly to the Editor, Mrs. A. T. McCormack, Louisville,

The President offered her program for the coming year in the form of a code. Following free discussion from the floor, the program was adopted, unanimously, and will be known as The Code of the Woman's Auxiliary to the Kentucky State Medical Association. Copies of the Code will be made available to County Presidents immediately.

Adjourned, 3:30.

(Mrs. W. T.) Virginia Little,
Recording Secretary.

### The Woman's Club Entertains

Honoring the President, Mrs. B. K. Menefee, the newly elected officers and the special guest, Mrs. Willard Bartlett, St. Louis, Missouri, a director of the American Medical Auxiliary, the Woman's Club of Murray entertained with a delightful tea at the beautiful and spacious new home of Dr. William H. Mason and Mrs. Mason, located on a hill affording a fine view, on the outskirts of Murray. A musical program of variety and charm added much pleaure to this gracious occasion when Club Women honored Auxiliary members in a very happy manner. Refreshments on the terrace overlooking the garden were enjoyed as the sun dipped into the west, gloriously splashing long lines of rosy hue over the horizon as though in promise of bright days for the future year.

### The Banquet

Members of the Auxiliary were invited, with other friends and guests, to attend the Annual Banquet of the Kentucky State Medical Association, held in Wells Hall. Music for this occasion was furnished by the orchestra of Murray State Teachers College. Following the Banquet, everybody moved to the auditorium where with Dr. William M. Martin presiding, the Annual Oration was delivered by Dr. Willard Bartlett, St. Louis, Mo., following a happy introduction by Dr. George A. Hendon, Louisville. His subject, A Consideration of Four Eras in Medicine as the Basis for a Prophesy, was delightfully developed, showing the evident results of wide reading and considerable research, which delighted his audience, inspiring many with a desire to study medical history. Then, Dr. Oliver P. Kimball, Cleveland, was introduced by Dr. A. T. McCormack. In a most interesting manner, Dr. Kimball gave a rather technical address on Clinical Hypothyroidism with slides illustrating remarkable conditions and even more remarkable results following recently developed treatment. Both addresses were instructive and entertaining and were greatly enjoyed by all present.

(See Kentucky Medical Journal for addresses in full.)

## THE PRESIDENT'S REPORT

**Mrs. A. T. McCormack, Louisville**

This past year, a proving period in the life of organizations, as well as of individuals, has been filled with busy, bewildering days marked with new problems and undreamed experiences bringing discouragement, disappointments, disillusionments to all, yet, with, here and there, surprising helpfulness from strange, often unknown sources. Out of it all has come a deeper realization of our need for each other, mutual interdependence, and a desire to know each other better. Now, with an apparently new era of civilization establishing itself under our great leader, Franklin Delano Roosevelt, a new order promises to lighten the burdens and make life the happy opportunity for service it was intended to be.

This organization has fared unusually well, considering the economic stringency which almost paralyzed social activities and pinched the very necessaries of life in the homes of many of our physicians, who, giving most thought always to their patients, often used all the available cash to buy gasoline to run the automobile for a "sick call" on a sufferer who would perhaps pay him with "thank you, doctor." Welcome words and gratifying, but—unless supplemented with material evidence of gratitude, adding nothing to the empty cupboard in the doctor's home, nor providing new clothes for his family.

Our Auxiliary finances have operated at a loss this year but show a bank balance of $90.10 in the General Administrative Fund, on September 8th, with all bills paid to date. Strictest economy has been practiced this year by each of the Executive Officers and by the Chairmen of State Committees.

Immediately following the Annual Meeting last year, several members of the Executive Board met and drew up a tentative Budget plan under which they all agreed to work for the year so that some definite suggestions for the official adoption of a budget could be made at this meeting. The Finance Chairman, Mrs. R. L. Collins, has done good work on this project. You will learn more in detail about this later.

Following the survey last year (See The Quarterly, October 1932, pp. 19-31) it was clearly evident that we were carrying quite a large number of names of women in our membership who displayed no interest whatsoever in the Auxiliary. Yet, on all listed members, the A. M. A. Auxiliary expects an annual fee of 25c in dues. Our Treasury can no longer stand that strain. So, during this year, when every organization and business is putting its house in order, going to the bottom of things and rebuilding, we decided to do likewise, along with adjusting ourselves to the new Fiscal Year, adopted in the Revisions to the Constitution, at the 1932 Annual Meeting. This has cut our membership total terribly for this report because our membership is now listed as the total paid to December 31, 1932, the end of our Fiscal Year. Additional memberships have been paid since then, to be sure, but we are now following the National Auxiliary plan of counting our membership, for representation, as that paid up to the end of our Fiscal Year, December 31. On that total, our representation at the American Medical Auxiliary meetings will be reckoned.

(County Treasurers are required to send their dues to the State Treasurer at the end of the County Fiscal Year. This date varies in the different counties just as the end of the State Fiscal Year varies, and State dues are sent at the end of each State Fiscal Year to the National Treasurer, "all around the calendar," as Mrs. Walter Jackson Freeman used to say.)

We found, too, that only eight of our thirty listed County Auxiliary organizations had shown evidences of life or activity for a long time. So, after trying to revive these organizations, but failing to do so, we dropped them as they, too, were costing us money, since the Southern Medical Auxiliary requires dues of One Dollar for each organized County Auxiliary. The active counties will present the report of their work to you, shortly.

All of the Committee Chairmen have been active during the year and will give you the results of their work in their reports.

Unfortunately, illness last April deprived us of further activity on the part of our Hygeia Chairman, Mrs. Irvin Abell, who, I am happy to report now has improved sufficiently to travel with Dr. Abell on an extended European trip. Eagerly we all look forward to her return, in good health. The Auxiliary misses a loyal faithful friend, and constructive supporter when Mrs. Abell is absent.

One unusual occurrence, in our official ranks, was a wedding. Mrs. S. W. Bates, Chairman of the Tuberculosis Committee, our newest project, gave us all a real thrill when, with never a word to a soul of us, she quietly married Mr. James D. Gibbs and slipped off to California for a honeymoon last March. I am happy to report that she continues her interest in Auxiliary work, however.

The publication of **The Quarterly** has been continued with the splendid cooperation of you Auxiliary members who have provided the reading matter for its pages. During the past year twenty-seven of you have supplied items for our columns. Please send in more material for our readers. We need "lots of copy." Eight members have secured or helped to secure advertisements (see the Annual Audit in the forthcoming October issue for the names of the firms and for the names of the members acting as agents). Twelve Kentucky members have sent in donations of $1.00; County Auxiliaries, Nelson and Perry, sent in a donation of $5.00 each. In Perry County, that enterprising Auxiliary persuaded the Perry County Medical Society to send in $5.00 for the support of **The Quarterly.** These are the only three donations from organized groups. Twelve members of the County Auxiliaries throughout the State have sent in donations of One Dollar; one member sent in Two Dollars; eighteen Auxiliary members of different States have sent donations of One Dollar. These donations all help greatly, but—we need still more extended support, support from all of you, to properly finance **The Quarterly.** The responsibility of financing this publication should not all be left with the few members in Louisville who voluntarily have solicited advertisements. **The Quarterly** belongs to all the members of the Auxiliary and all of them should share in its financial and intellectual support. How will you do this? Membership fees contribute nothing to **The Quarterly:** it is supported entirely by advertising and by donations. To date, the donations from all sources total but $48.00 of the required budget of approximately $1,000.00. What is your suggestion for the financial support of **The Quarterly?** Do give us some helpful suggestions.

Incidentally, with all the changes that are being made in everything these days, the postal authorities announce that we must change the name of our publication. It is a supplement; supplements are required to carry the name of the parent publication. Therefore, we are to be known hereafter as "Kentucky Medical Journal, Part 2, Woman's Auxiliary Section." This will in no way change our time of publication, however; you will still receive the Supplement, quarterly, in January, April, July and October.

During the year I have attended the following County Auxiliary meetings: Campbell-Kenton, Jefferson, Marion and Nelson; I aimed to visit each organizaton, but could not. I also attended the Annual Meeting of the Southern Medical Auxiliary held at Birmingham, November 15-18, 1932, and the Annual Meeting of the American Medical Auxiliary held in Milwaukee, June 12-16, 1933.

Now, that my term of office is over, and a happy, privileged opportunity I have found it, I bespeak for Mrs. Menefee, our incoming President, the comfort and the encouragement of your friendly letters with all the details and suggestions you gave me, and the many, many helpful little things you alone can think to do for her as you have done for me, bringing with them joy and satisfaction in the effort to do this administrative work and do it best for you. You understand what I mean—that intangible evidence of genuine friendliness—the thousand-and-one little attentions which make a pleasant memory of routine official work.

To serve as your President is a distinct honor and a very real privilege. It has been a memorable experience for me. I have enjoyed working with you. Your splendid cooperation is a stimulation to continued endeavor. I shall be happy in the privilege of continuing to serve with you, as a private in the ranks, for the further development of the Woman's Auxiliary to the Kentucky State Medical Association, which is, I think, the finest woman's organization to which I belong.

(To Be Continued)

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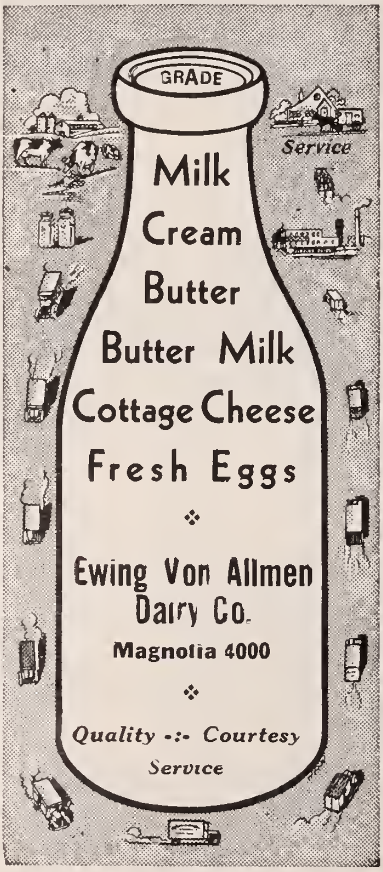

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